```
=> d his

     (FILE 'HOME' ENTERED AT 14:55:04 ON 10 FEB 1999)
               SET COST OFF

     FILE 'REGISTRY' ENTERED AT 14:55:16 ON 10 FEB 1999
               E BOSWELLIC ACID/CN
               E BOSWELL/CN

     FILE 'HCAPLUS' ENTERED AT 14:55:41 ON 10 FEB 1999
L1            60 S BOSWELLIC ACID
               E AMMON H/AU
L2           195 S E3,E5,E14
               E SAFAYHI H/AU
L3            35 S E3,E4
L4            20 S L1 AND L2,L3

     FILE 'REGISTRY' ENTERED AT 15:00:02 ON 10 FEB 1999
L5             2 S 631-69-6 OR 471-66-9
L6             1 S 67416-61-9
L7             1 S 5968-70-7
L8             1 S 17019-92-0
L9             1 S 89913-60-0

     FILE 'HCAPLUS' ENTERED AT 15:01:28 ON 10 FEB 1999
               SET SMARTSELECT ON
L10          SEL L4 1- RN :       36 TERMS
               SET SMARTSELECT OFF

     FILE 'REGISTRY' ENTERED AT 15:01:31 ON 10 FEB 1999
L11           36 S L10
L12           17 S L11 AND C6-C6-C6-C6-C6/ES
L13           11 S L12 NOT L5-L9
L14           19 S L11 NOT L5-L9,L12,L13
               E PLASMIN/CN
L15            1 S E3
               E LEUKOCYTIC ELASTASE/CN
               E LEUKOCYTE ELASTASE/CN
               E ELASTASE/CN
L16            1 S E3
               E ELASTASE, LEU/CN
               E BOSWEL
L17           12 S E10
L18            7 S L17 NOT L5-L9,L12,L13
L19           24 S L5-L9,L12,L13,L17

     FILE 'HCAPLUS' ENTERED AT 15:05:34 ON 10 FEB 1999
L20         2659 S L19
L21         2682 S L1 OR L20
L22           21 S L2,L3 AND L21
L23           21 S L4,L22
L24         8435 S L16 OR ELASTASE
L25         8742 S L15 OR PLASMIN OR FIBRINOLYSIN OR THROMBOLYSIN
L26            8 S L21 AND L24
L27            2 S L21 AND L25
L28            9 S L26,L27
L29            3 S L5 AND L28
L30           14 S (?ARTHRIT? OR ?RHEUMAT? OR ?BRONCH? OR ?FIBROS? OR ?EMPHYSEM?
L31            6 S (?TUMOR? OR ?TUMOUR? OR ?CANCER? OR ?CARCIN? OR ?NEOPLAS? OR
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L32           4 S (?RESPIRAT? OR PULMON? OR LUNG OR KIDNEY) AND (L1 OR L5)
L33           2 S L30-L32 AND L24,L25
L34           3 S L29,L33
L35          23 S L26-L33 NOT L34
L36           7 S L5 AND L35
L37         428 S BOSWELL? OR SALAI OR OLIBANUM OR DAMARA OR D ORIENTALIS OR FR
L38           2 S L27 AND L24,L25
L39          18 S L6
L40           2 S L39 AND L24,L25
L41          11 S L34,L36,L38,L40
L42         429 S L37 OR L5 OR L39
L43          17 S L42 AND (?ARTHRIT? OR ?RHEUMAT? OR ?BRONCH? OR FIBROS? OR ?EM
L44          15 S L42 AND (?NEPHRIT? OR ?TUMOR? OT ?TUMOUR? OR ?CANCER? OR ?CAR
L45           7 S L42 AND (?MALIGN? OR ?RESPIRAT? OR PULMON? OR LUNG OR KIDNEY)
L46          33 S L43-L45
L47          25 S L46 NOT L41
L48          22 S L47 AND (1 OR 15 OR 63)/SC,SX
L49          21 S L48 NOT 7/SC
L50           3 S L47 NOT L48
L51           2 S L50 NOT 8/SC
L52          34 S L49,L51,L41
              SEL HIT RN

     FILE 'REGISTRY' ENTERED AT 15:28:56 ON 10 FEB 1999
L53           7 S E1-E7

=> fil reg
FILE 'REGISTRY' ENTERED AT 15:29:13 ON 10 FEB 1999
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STRUCTURE FILE UPDATES:   6 FEB  99  HIGHEST RN 219473-81-1
DICTIONARY FILE UPDATES:  9 FEB  99  HIGHEST RN 219473-81-1

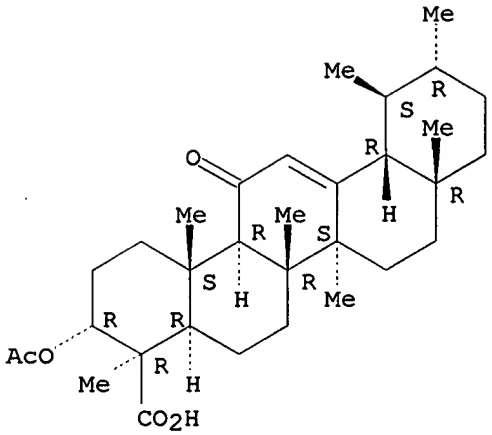
TSCA INFORMATION NOW CURRENT THROUGH JUNE 29, 1998

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

=> d ide can tot 153

L53  ANSWER 1 OF 7  REGISTRY  COPYRIGHT 1999 ACS
RN   67416-61-9  REGISTRY
CN   Urs-12-en-23-oic acid, 3-(acetyloxy)-11-oxo-, (3.alpha.,4.beta.)- (9CI)
     (CA INDEX NAME)
OTHER NAMES:
CN   Acetyl-11-oxo-.beta.-boswellic acid
CN   AKBA
FS   STEREOSEARCH
DR   187945-03-5
MF   C32 H48 O5
LC   STN Files:   BEILSTEIN*, BIOSIS, CA, CAPLUS, TOXLIT, USPATFULL
         (*File contains numerically searchable property data)

Absolute stereochemistry.
```



18 REFERENCES IN FILE CA (1967 TO DATE)
18 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 129:298120

REFERENCE 2: 129:72038

REFERENCE 3: 127:302851

REFERENCE 4: 126:338554

REFERENCE 5: 126:203738

REFERENCE 6: 126:195256

REFERENCE 7: 125:211471

REFERENCE 8: 125:184523

REFERENCE 9: 124:331705

REFERENCE 10: 124:277960

L53 ANSWER 2 OF 7 REGISTRY COPYRIGHT 1999 ACS
RN **9004-06-2** REGISTRY
CN Elastase (9CI) (CA INDEX NAME)
OTHER NAMES:
CN E.C. 3.4.21.11
CN E.C. 3.4.21.36
CN E.C. 3.4.21.37
CN E.C. 3.4.24.65
CN E.C. 3.4.4.7
CN Elaszym
CN Macrophage metalloelastase
CN Matrix metalloproteinase-12
CN MMP-12
CN Pancreatopeptidase E
CN Peptidase, pancreato-, E
DR 9001-21-2, 139074-64-9
MF Unspecified
CI COM, MAN

LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, CA, CABA, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMLIST, CBNB, CIN, CSCHEM, DDFU, DRUGU, EMBASE, IFICDB, IFIPAT, IFIUDB, IPA, MRCK*, NAPRALERT, NIOSHTIC, PHAR, PROMT, RTECS*, TOXLINE, TOXLIT, USAN, USPATFULL
(*File contains numerically searchable property data)
Other Sources: EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
5670 REFERENCES IN FILE CA (1967 TO DATE)
219 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
5685 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 130:86058

REFERENCE 2: 130:81894

REFERENCE 3: 130:81830

REFERENCE 4: 130:79498

REFERENCE 5: 130:79346

REFERENCE 6: 130:77971

REFERENCE 7: 130:77102

REFERENCE 8: 130:76330

REFERENCE 9: 130:75744

REFERENCE 10: 130:66781

L53 ANSWER 3 OF 7 REGISTRY COPYRIGHT 1999 ACS
RN **9001-90-5** REGISTRY
CN Plasmin (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Actase
CN E.C. 3.4.21.7
CN E.C. 3.4.4.14
CN Fibrinase
CN Fibrinolysin
CN Serum tryptase
CN Thrombolysin
DR 9065-96-7
MF Unspecified
CI COM, MAN
LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, CA, CABA, CAPLUS, CEN, CHEMCATS, CHEMLIST, CIN, CSCHEM, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MRCK*, NAPRALERT, PROMT, TOXLINE, TOXLIT, USPATFULL
(*File contains numerically searchable property data)
Other Sources: EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
4398 REFERENCES IN FILE CA (1967 TO DATE)
377 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
4404 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 130:79190

REFERENCE 2: 130:78443

REFERENCE 3: 130:75992

REFERENCE 4: 130:64715

REFERENCE 5: 130:64380

REFERENCE 6: 130:64240

REFERENCE 7: 130:63250

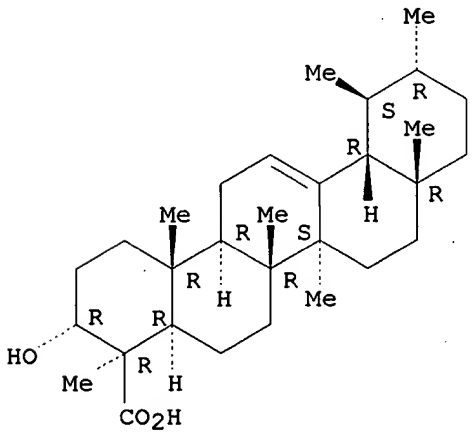
REFERENCE 8: 130:52411

REFERENCE 9: 130:50868

REFERENCE 10: 130:49530

L53 ANSWER 4 OF 7 REGISTRY COPYRIGHT 1999 ACS
RN **631-69-6** REGISTRY
CN Urs-12-en-23-oic acid, 3-hydroxy-, (3.alpha.,4.beta.)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN .beta.-Boswellic acid (6CI)
CN Urs-12-en-24-oic acid, 3.alpha.-hydroxy- (8CI)
FS STEREOSEARCH
MF C30 H48 O3
CI COM
LC STN Files: ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CANCERLIT, CAOLD, CAPLUS, DDFU, DRUGU, EMBASE, MEDLINE, MRCK*, NAPRALERT, TOXLINE, TOXLIT, USPATFULL
(*File contains numerically searchable property data)

Absolute stereochemistry.



29 REFERENCES IN FILE CA (1967 TO DATE)
2 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
29 REFERENCES IN FILE CAPLUS (1967 TO DATE)

5 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 130:7330

REFERENCE 2: 129:298120

REFERENCE 3: 129:100026

REFERENCE 4: 129:72038

REFERENCE 5: 128:101578

REFERENCE 6: 127:272136

REFERENCE 7: 126:338554

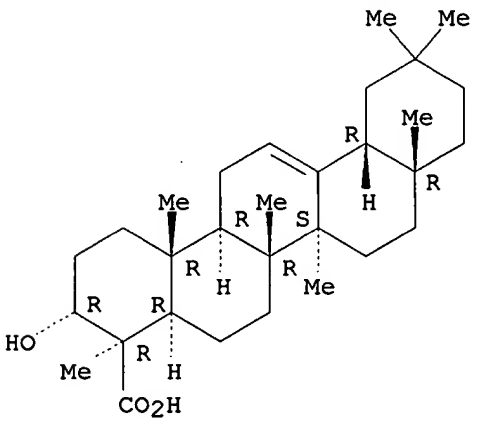
REFERENCE 8: 126:203738

REFERENCE 9: 126:195256

REFERENCE 10: 125:185261

L53 ANSWER 5 OF 7 REGISTRY COPYRIGHT 1999 ACS
RN **471-66-9** REGISTRY
CN Olean-12-en-23-oic acid, 3-hydroxy-, (3.alpha.,4.beta.)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN .alpha.-Boswellic acid (6CI)
CN Olean-12-en-24-oic acid, 3.alpha.-hydroxy- (8CI)
FS STEREOSEARCH
MF C30 H48 O3
LC STN Files: AGRICOLA, BEILSTEIN*, BIOSIS, CA, CAOLD, CAPLUS, DDFU, DRUGU, NAPRALERT, TOXLIT
(*File contains numerically searchable property data)

Absolute stereochemistry.



8 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
8 REFERENCES IN FILE CAPLUS (1967 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 128:101578

REFERENCE 2: 126:203738

REFERENCE 3: 121:18104

REFERENCE 4: 119:152084

REFERENCE 5: 119:125204

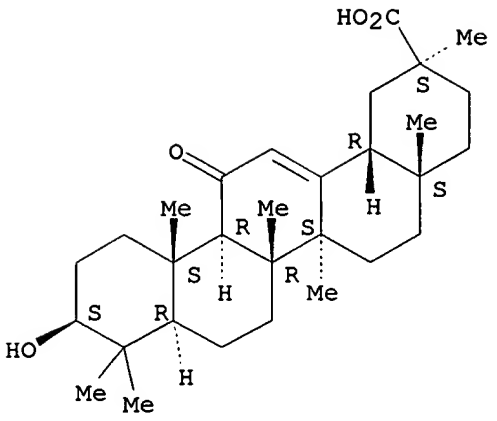
REFERENCE 6: 117:40043

REFERENCE 7: 100:188743

REFERENCE 8: 89:117519

L53 ANSWER 6 OF 7 REGISTRY COPYRIGHT 1999 ACS
RN **471-53-4** REGISTRY
CN Olean-12-en-29-oic acid, 3-hydroxy-11-oxo-, (3.beta.,20.beta.)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Olean-12-en-30-oic acid, 3.beta.-hydroxy-11-oxo- (8CI)
CN Uralenic acid (7CI)
OTHER NAMES:
CN .alpha.-Glycyrrhetinic acid
CN 18.beta.-Glycyrrhetic acid
CN 18.beta.-Glycyrrhetinic acid
CN Biosone
CN Enoxolone
CN Glycyrrhetic acid
CN Glycyrrhetin
CN Glycyrrhetinic acid
CN GM 1658
CN Subglycyrrhelinic acid
FS STEREOSEARCH
DR 8055-71-8, 15301-63-0, 107420-91-7, 202522-39-2
MF C30 H46 O4
CI COM
LC STN Files: AGRICOLA, AIDSLINE, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CHEMCATS, CHEMLIST, CIN, CSCHEM, DDFU, DRUGU, EMBASE, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, NAPRALERT, NIOSHTIC, PROMT, RTECS*, SPECINFO, TOXLINE, TOXLIT, USAN, USPATFULL
(*File contains numerically searchable property data)
Other Sources: EINECS**, NDSL**, TSCA**, WHO
(**Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry.



803 REFERENCES IN FILE CA (1967 TO DATE)
64 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
807 REFERENCES IN FILE CAPLUS (1967 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 130:75703

REFERENCE 2: 130:66624

REFERENCE 3: 130:60702

REFERENCE 4: 130:46279

REFERENCE 5: 130:43387

REFERENCE 6: 130:43318

REFERENCE 7: 130:38590

REFERENCE 8: 130:33192

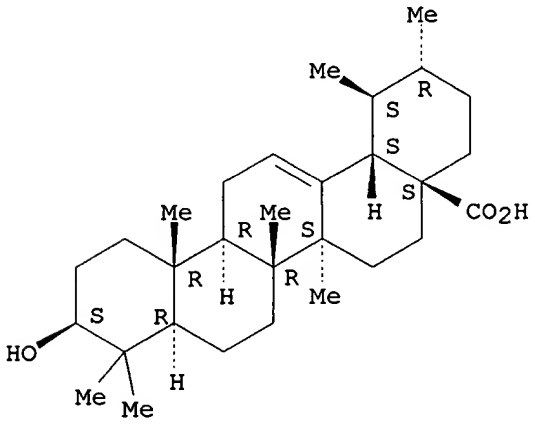
REFERENCE 9: 130:7496

REFERENCE 10: 130:7409

L53 ANSWER 7 OF 7 REGISTRY COPYRIGHT 1999 ACS
RN **77-52-1** REGISTRY
CN Urs-12-en-28-oic acid, 3-hydroxy-, (3.beta.)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Urs-12-en-28-oic acid, 3.beta.-hydroxy- (8CI)
OTHER NAMES:
CN (+)-Ursolic acid
CN .beta.-Ursolic acid
CN Bungeolic acid
CN Malol
CN Prunol
CN Ursolic acid
CN Urson
FS STEREOSEARCH
DR 209545-05-1
MF C30 H48 O3

CI COM
LC STN Files: ADISINSIGHT, AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST, CSCHEM, DETHERM*, DDFU, DRUGU, EMBASE, HODOC*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, NAPRALERT, PROMT, SPECINFO, TOXLINE, TOXLIT, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry.



1087 REFERENCES IN FILE CA (1967 TO DATE)
13 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
1090 REFERENCES IN FILE CAPLUS (1967 TO DATE)
18 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 130:78688

REFERENCE 2: 130:75713

REFERENCE 3: 130:49823

REFERENCE 4: 130:49797

REFERENCE 5: 130:49792

REFERENCE 6: 130:47411

REFERENCE 7: 130:47294

REFERENCE 8: 130:47152

REFERENCE 9: 130:38539

REFERENCE 10: 130:29193

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 15:29:25 ON 10 FEB 1999
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FILE COVERS 1967 - 10 Feb 1999 VOL 130 ISS 7
FILE LAST UPDATED: 10 Feb 1999 (19990210/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

This file supports REG1stRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

=> d bib abs hitrn tot 152

L52 ANSWER 1 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:756322 HCAPLUS
DN 130:7330
TI Effect of Boswellia serrata gum resin in patients with **bronchial** asthma. Results of a double-blind, placebo-controlled, 6-week clinical study
AU Gupta, I.; Gupta, V.; Parihar, A.; Gupta, S.; Luedtke, R.; Safayhi, H.; Ammon, H. P. T.
CS Dep. Medicine, Govt. Medical College, Jammu Tawi, India
SO Eur. J. Med. Res. (1998), 3(11), 511-514
CODEN: EJMRFL; ISSN: 0949-2321
PB I. Holzapfel Publishers
DT Journal
LA English
AB B. serrata gum resin (Salai guggal in Ayurvedic medicine) was examd. in a double-blind, placebo-controlled study. **Bronchial** asthma patients were treated with 300 mg 3.times. /day for 6 wk. Improvement occurred in 70% (disappearance of symptoms, dyspnoea, rhonchi, redn. of attack no., increase in forced expiratory vol. in 1 s, forced vital capacity, and peak expiratory flow rate, decrease in eosinophilic count and erythrocyte sedimentation).
IT **631-69-6**, .beta.-**Boswellic acid**
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(B. serrata gum resin (Salai guggal) in **bronchial** asthma)

L52 ANSWER 2 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:633203 HCAPLUS
DN 130:46928
TI Retinoids in the management of central nervous system (CNS) tumors
AU Westarp, M. E.
CS Department of Neurology, Ulm University, Bad Orb, Germany
SO Adv. Organ Biol. (1997), 3(Retinoids: Their Physiological Function and Therapeutic Potential), 231-260
CODEN: AOBIFW
PB JAI Press Inc.
DT Journal; General Review
LA English

AB A review with many refs. We have analyzed and investigated with clin. means the potential use of retinoids in primary CNS (brain) tumors. Established to be effective in ectodermal skin disorders, retinoids also effectively alter the growth of neuro-epithelial tissue, i.e. cells of neuro-ectodermal origin. 13-Cis-Retinoic acid and inhibitor of RA catabolism, liarozole, can both be given orally and as addnl., adjuvant medication to std. treatment protocols. Particularly in conjunction with liarozole to avoid decreasing plasma and tissue concns., 13cRA seems to be safe and promising in the therapy of intracranial tumors. The combined medication did not lead to increased intracranial pressure, was well tolerated, and may be able to induce tumor cell differentiation, slow de-differentiation and improve anti-tumoral responses. Retinoids are compatible with all other treatment modalities, including radiotherapy, anti-edematous **Boswellia** acids and intra-tumoral approaches such as herpes-simplex thymidine kinase/ganciclovir insertion, and may prove useful even in lower-grade astrocytoma or other neuro-epithelial, e.g. spinal, **neoplasia**.

L52 ANSWER 3 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:315240 HCAPLUS
DN 129:72038
TI Inhibitory activity of **boswellic acids** from Boswellia serrata against human leukemia HL-60 cells in culture
AU Shao, Yu; Ho, Chi-Tang; Chin, Chee-Kok; Badmaev, Vladimir; Ma, Wei; Huang, Mou-Tuan
CS Department Plant Science, Cook College, State University New Jersey, New Brunswick, NJ, 08903, USA
SO Planta Med. (1998), 64(4), 328-331
CODEN: PLMEAA; ISSN: 0032-0943
PB Georg Thieme Verlag
DT Journal
LA English
AB Four major triterpene acids including .beta.-**boswellic acid**, 3-O-acetyl-.beta.-**boswellic acid**, 11-keto-O-**boswellic acid**, and 3-O-acetyl-11-keto-.beta.-**boswellic acid** were isolated from the gum resin of Boswellia serrata and examd. for their in vitro **antitumor** activity. They inhibited the synthesis of DNA, RNA, and protein in human leukemia HL-60 cells dependent with IC50 values from 0.6- 7.1 .mu.M. Among them, 3-O-acetyl-11-keto-.beta.-**boswellic acid** induced the most pronounced inhibitory effects on DNA, RNA, and protein synthesis with IC50 values of 0.6, 0.5, and 4.1 .mu.M, resp. The effect of 3-O-acetyl-11-keto-.beta.-**boswellic acid** on DNA synthesis was irreversible. 3-O-acetyl-11-keto-.beta.-**boswellic acid** inhibited the cellular growth of HL-60 cells, but did not affect cell viability.
IT **631-69-6**, .beta.-**Boswellic acid**
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); USES (Uses)
(**antitumor** activity of **boswellic acids** from Boswellia)

L52 ANSWER 4 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1997:631612 HCAPLUS
DN 127:272136
TI Pharmacological aspects of incense and **boswellic acids**
AU Safayhi, Hasan; Ammon, Hermann P. T.
CS Pharmazeutisches Institut, Universitat Tubingen, Tuebingen, D-72076,

Germany
SO Pharm. Ztg. (1997), 142(39), 3277-3280,3282,3284-3286
CODEN: PHZIAP; ISSN: 0031-7136
PB Govi-Verlag Pharmazeutischer Verlag
DT Journal; General Review
LA German
AB A review with 40 refs. is given on pharmacol. effects of incense, its exts., and **boswellic acids** isolated from it. The best known effect is the antiinflammatory action due to inhibition of leukotriene biosynthesis by a hitherto unique mechanism. Other enzymes, such as leukocyte **elastase**, topoisomerase I, and serin proteases, are inhibited in vitro at 10- to 20-fold higher **boswellic acid** concns. as it is necessary for lipoxygenase inhibition. Clin. studies on applications of incense exts. in the treatment of articular **rheumatism**, colitis ulcerosa, and **tumor**-induced brain edema are also reviewed and toxicol. aspects are discussed.
IT **631-69-6**, .beta.-**Boswellic acid**
RL: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(pharmacol. aspects of incense and **boswellic acids**)

L52 ANSWER 5 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1997:270851 HCAPLUS
DN 126:338554
TI Inhibition by **boswellic acids** of human leukocyte **elastase**
AU Safayhi, Hasan; Rall, Beatrice; Sailer, Eckart-Roderich; Ammon, Hermann P. T.
CS Institute Pharmaceutical Sciences, Univ. Tuebingen, Tuebingen, D-72076, Germany
SO J. Pharmacol. Exp. Ther. (1997), 281(1), 460-463
CODEN: JPETAB; ISSN: 0022-3565
PB Williams & Wilkins
DT Journal
LA English
AB Frankincense exts. and **boswellic acids**, biol. active pentacyclic triterpenes of frankincense, block leukotriene biosynthesis and exert potent anti-inflammatory effects. Screening for addnl. effects of **boswellic acids** on further proinflammatory pathways, the authors obsd. that acetyl-11-keto-.beta.-**boswellic acid**, an established direct, nonredox and noncompetitive 5-lipoxygenase inhibitor, decreased the activity of human leukocyte **elastase** (HLE) in vitro with an IC50 value of about 15 .mu.M. Among the pentacyclic triterpenes tested in concns. .ltoreq.20 .mu.M, the authors also obsd. substantial inhibition by .beta.-**boswellic acid**, amyrin and ursolic acid, but not by 18.beta.-glycyrrhetinic acid. The data show that the dual inhibition of 5-lipoxygenase and HLE is unique to **boswellic acids**: other pentacyclic triterpenes with HLE inhibitory activities (e.g., ursolic acid and amyrin) do not inhibit 5-lipoxygenase, and leukotriene biosynthesis inhibitors from different chem. classes (e.g., NDGA, MK-886 and ZM-230,487) do not impair HLE activity. Because leukotriene formation and HLE release are increased simultaneously by neutrophil stimulation in a variety of inflammation- and hypersensitivity-based human diseases, the reported blockade of two proinflammatory enzymes by **boswellic acids** might be the rationale for the putative antiphlogistic activity of acetyl-11-keto-.beta.-**boswellic acid** and derivs.

IT **67416-61-9**
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(inhibition by **boswellic acids** of human leukocyte **elastase** in relation to anti-inflammatory activity)
IT **77-52-1**, Ursolic acid **471-53-4**, 18.beta.-Glycyrrhetinic acid **631-69-6**, .beta.-**Boswellic acid**
9004-06-2, **Elastase**
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(inhibition by **boswellic acids** of human leukocyte **elastase** in relation to anti-inflammatory activity)

L52 ANSWER 6 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1997:215775 HCAPLUS
DN 126:203738
TI Inhibition of leukocyte **elastase** and **plasmin** activity by **boswellic acid**
IN Ammon, Hermann P. T.; Safayhi, Hasan
PA Ammon, Hermann P. T., Germany
SO Ger. Offen., 12 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19531067	A1	19970227	DE 95-19531067	19950823
	WO 9707796	A1	19970306	WO 96-EP3705	19960822
	W: JP, US				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 854709	A1	19980729	EP 96-929309	19960822
	R: AT, BE, CH, DE, DK, ES, FR, GB, LI, LU, NL, SE, PT, IE, FI				
PRAI	DE 95-19531067		19950823		
	WO 96-EP3705		19960822		

AB Human and veterinary **respiratory** diseases assocd. with elevated leukocyte **elastase** and **plasmin** activity are treated by administration of **boswellic acid** or its salts or derivs. These diseases include **pulmonary emphysema**, acute **respiratory** distress syndrome, shock **lung**, cystic **fibrosis**, and chronic **bronchitis**, as well as **glomerulonephritis**, **rheumatoid arthritis**, and certain **tumors** and **metastases**. Thus, acetyl-11-keto-.beta.-**boswellic acid** inhibited human leukocyte **elastase** and human **plasmin** in vitro with IC50 .apprx.17 .mu.M and 4-6 .mu.M, resp. Tablets were prepd. contg. **boswellic acid** 15-30, Mg stearate 0.65, and lactose 80 mg.
IT **471-66-9**, .alpha.-**Boswellic acid**
471-66-9D, .alpha.-**Boswellic acid**, derivs.
631-69-6, .beta.-**Boswellic acid**
631-69-6D, .beta.-**Boswellic acid**, derivs.
67416-61-9
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(inhibition of leukocyte **elastase** and **plasmin** activity by **boswellic acid**)
IT **9001-90-5**, **Plasmin** **9004-06-2**, **Elastase**
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(inhibition of leukocyte **elastase** and **plasmin**

activity by **boswellic acid**)

L52 ANSWER 7 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1997:207552 HCAPLUS
DN 126:195256
TI **Boswellic acid** compositions and preparation thereof
IN Taneja, Subhash Chandra; Sethi, Vijay Kumar; Dhar, Kanaya Lal; Kapil, Randhir Singh
PA Council of Scientific and Industrial Research, India
SO Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 755940	A1	19970129	EP 95-305242	19950727
	R: AT, BE, CH, DE, DK, FR, GB, IT, LI, SE				
	US 5629351	A	19970513	US 95-421500	19950413
PRAI	EP 95-305242		19950727		

AB A novel fraction exhibiting anti-inflammatory, **antiarthritic**, and antiulcerogenic activities is isolated from the gum resin of Boswellia serrata. A process for isolating the fraction and individual **boswellic acids** therefrom is also disclosed. In a dose range of 25-200 mg/kg orally, the fraction displayed 25.71-47.54% inhibitory action in carrageenan, histamine, and dextran-induced edema in rats and mice.
IT **631-69-6P**
RL: ADV (Adverse effect, including toxicity); BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)
(**boswellic acids** of Boswellia serrata gum as anti-inflammatory and antiulcer agents)

L52 ANSWER 8 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1996:491734 HCAPLUS
DN 125:185262
TI Anti-inflammatory actions of **boswellic** acids
AU Singh, G. B.; Singh, Surjeet; Bani, Sarang
CS Regional Research Laboratory, Department Pharmacology, Jammu Tawi, 180 001, India
SO Phytomedicine (1996), 3(1), 81-85
CODEN: PYTOEY; ISSN: 0944-7113
DT Journal
LA English
AB **Boswellic** acids (BA) demonstrated dose-related anti-inflammatory activity (AIA) in acute tests of carrageenan-, histamine- and dextran-induced edema in rats and mice. It elicited inhibitory action on vascular permeability in mice induced by acetic acid. Marked AIA was obsd. in chronic models of adjuvant-induced **polyarthritis** and formaldehyde **arthritis** in rats and bovine serum albumin-induced **arthritis** in rabbits. It produced significant protective effects in sodium urate gouty **arthritis** in dogs. BA reduced exudate vol. and inhibited leukocyte migration in carrageenan-induced pleurisy in rats. It did not affect the parturition period in pregnant rats or castor oil-induced diarrhea in rats. It failed to exhibit any analgesic or ulcerogenic effects. BA elicited antipyretic activity in rats and rabbits. LD50 of BA was greater than 2 g/kg in rats and mice when

administered orally or i.p.

L52 ANSWER 9 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1996:435242 HCAPLUS
DN 125:67823
TI **Boswellic acid** for treatment of brain **tumors**
IN Simmet, Thomas; Ammon, Hermann P. T.
PA Germany
SO Ger. Offen., 6 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 4445728	A1	19960627	DE 94-4445728	19941221
	WO 9619212	A1	19960627	WO 95-EP5073	19951221
	W: JP, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 871437	A1	19981021	EP 95-942720	19951221
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE				
	JP 10511647	T2	19981110	JP 95-519521	19951221
PRAI	DE 94-4445728		19941221		
	WO 95-EP5073		19951221		

AB .beta.-**Boswellic acid**, its salts and derivs., and plant prepns. from Boswellia serrata contg. them are useful in medications for treatment of brain **tumors**. Thus, tablets were prepd. by wet granulation from a mixt. contg. .beta.-**boswellic acid** 15-30, lactose 150.0, starch 30.0, gelatinized corn starch 15.0, and Mg stearate 1.5 mg/tablet.
IT **631-69-6**, .beta.-**Boswellic acid**
631-69-6D, .beta.-**Boswellic acid**, derivs.
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**boswellic acid** for treatment of brain **tumors**)

L52 ANSWER 10 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1995:544100 HCAPLUS
DN 122:298750
TI Recent progress in the study of **anticancer** drugs originating from plants and traditional medicines in China
AU Han, Rui
CS Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing, 100050, Peop. Rep. China
SO Chin. Med. Sci. J. (1994), 9(1), 61-9
CODEN: CMSJEP
DT Journal; General Review
LA English
AB Drugs of plant origin have received much attention due to their enormous potential for the prevention and treatment of **cancer**. Recent progress in the study of **anticancer** drugs originating from plants and traditional medicines in China is reviewed with 28 refs., with particular emphasis on taxol, daidzein, acetyl **boswellic** acid, curcumin and ginsenoside Rh2.

L52 ANSWER 11 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1995:400379 HCAPLUS
DN 122:177890

TI Cytotoxic constituents of Bursera permollis
AU Wickramaratne, D. B. M.; Mar, W.; Chai, H.; Castillo, J. J.; Farnsworth, N. R.; Soejarto, D. D.; Cordell, G. A.; Pezzuto, J. M.; Kinghorn, A. D.
CS Coll. Pharmacy, Univ. Illinois, Chicago, IL, 60612, USA
SO Planta Med. (1995), 61(1), 80-1
CODEN: PLMEAA; ISSN: 0032-0943
DT Journal
LA English
AB Four cytotoxic lignans were isolated from the stem bark of Bursera permollis (**Burseraceae**), namely, deoxypodophyllotoxin , .beta.-peltatin Me ether , picro-.beta.-peltatin Me ether , and dehydro-.beta.-peltatin Me ether. Also isolated was the inactive lignan, nemerosin. Deoxypodophyllotoxin and .beta.-peltatin Me ether were potently cytotoxic when evaluated against a panel of human **cancer** cell lines.

L52 ANSWER 12 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1994:645519 HCAPLUS
DN 121:245519
TI Effect of **boswellic** acids on complement in adjuvant- and carrageenan-induced inflammation
AU Kapil, A.
CS Pharmacology Division, Regional Research Laboratory, Jammu Tawi, 180 001, India
SO Inflammopharmacology (1994), 2(4), 361-7
CODEN: IAOAES; ISSN: 0925-4692
DT Journal
LA English
AB The in-vivo effects of non-steroidal anti-inflammatory agents on the host immune system are still poorly understood. However, through inhibition of complement, **boswellic** acids (BA) exhibit adjuvant-induced and carrageenan-induced anti-inflammatory properties. The present work was aimed at evaluating the influence of BA on complement-related inflammation in the exptl. models of inflammation. In adjuvant-induced **arthritis** and carrageenan-induced paw edema in rats, BA were found to possess significant anti-inflammatory and complement-inhibitory activities. The i.p. injection of BA (100 mg/kg twice a day), before and after FCA challenge and thereafter repeated for several days, significantly reduced foot pad thickness of exptl. animal models and simultaneously also reduced complement activity. It also showed marked redn. in complement levels and inflammatory effects on carrageenan-induced paw edema in rats when injected i.p. (100 mg/kg twice a day).

L52 ANSWER 13 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1994:524803 HCAPLUS
DN 121:124803
TI Application of papaya latex-induced rat paw inflammation: model for evaluation of slowly acting **antiarthritic** drugs
AU Gupta, O. P.; Sharma, N.; Chand, D.
CS Dep. Pharmacol., Reg. Res. Lab., Jammu-Tawi, India
SO J. Pharmacol. Toxicol. Methods (1994), 31(2), 95-8
CODEN: JPTMEZ; ISSN: 1056-8719
DT Journal
LA English
AB Papaya latex-induced rat paw inflammation model for evaluating antiinflammatory activity has been developed and reported earlier. A no. of drugs viz. aspirin, indomethacin, piroxicam, ibuprofen, prednisolone, levamisole, chloroquine, and **boswellic** acids showed antiinflammatory activity in this model. As the last three drugs showing

the activity belonged to the group of slowly acting **antiarthritic** drugs, this present study was undertaken to study in detail the sensitivity of this model for slowly acting, clin. effective, **antiarthritic** drug viz. chloroquine, levamisole, penicillamine, aurothioglucose, cyclophosphamide, and **boswellic** acids. These drugs are known to show no appreciable activity in the known models of inflammation and **arthritis**. All these drugs tested in three graded doses showed dose-related significant antiinflammatory activity in this model, whereas those drugs in the carrageenan model tested in similar doses showed insignificantly activity. Aspirin employed as a ref. std. showed significant activity in both the models. Thus the slowly acting **antiarthritic** drugs will be identified as those displaying significant activity in the papaya latex model and insignificant activity in the carrageenan model and to be aspirin-like by their significant activity in both the above models of inflammation.

L52 ANSWER 14 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1994:200438 HCAPLUS
DN 120:200438
TI Controlled-release transdermal pharmaceuticals containing cyrogels
IN Wood, Louis L.; Calton, Gary J.
PA SRCHEM Inc., USA
SO U.S., 15 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5260066	A	19931109	US 92-821627	19920116
	US 5288503	A	19940222	US 92-899369	19920616
PRAI	US 92-821627		19920116		

AB A controlled-release transdermal pharmaceutical contg. therapeutic agents in a poly(vinyl alc.) (I) cyrogel is disclosed. A slurry of 11.0 mg ciprofloxacin.HCl (II) and 200 mg 10% I was warmed to 50-60.degree. to obtain a clear homogeneous soln. The soln. was then placed in a mold and subjected to 6 freeze-thaw cycles to give a white opaque elastomeric cryogel having 15mm diam. and 0.5mm thickness. The release of II from the gel in 0.9% NaCl was 74% in th 1st 4 hs and it was const. in the subsequent 5-24 hs.
IT **471-53-4**, Glycyrrhetic acid **9001-90-5**, **Fibrinolysin**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(controlled-release transdermal pharmaceuticals contg. cryogels and)

L52 ANSWER 15 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1993:552084 HCAPLUS
DN 119:152084
TI **Boswellic acid** as inflammation inhibitor.
IN Ammon, Hermann P. T.; Safayhi, Hasan; Singh, G. B.
PA Germany
SO Eur. Pat. Appl., 20 pp.
CODEN: EPXXDW
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 552657	A1	19930728	EP 93-100398	19930113

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, NL, PT, SE
DE 4201903 A1 19930729 DE 92-4201903 19920124
PRAI DE 92-4201903 19920124
AB **Boswellic acid** (I) or I-contg. plant prepns. are inhibitors of inflammation caused by enhanced leukotriene formation, such as ulcerative colitis and Crohn's disease. The mechanism of I action involves inhibition of 5-lipoxygenase.
IT **471-66-9**, .alpha.-**Boswellic acid**
631-69-6, .beta.-**Boswellic acid**
RL: BIOL (Biological study)
(antiinflammatory agent, 5-lipoxygenase inhibition in relation to)

L52 ANSWER 16 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1993:183037 HCAPLUS
DN 118:183037
TI Antiinflammatory activity of resins from some species of the plant family **Burseraceae**
AU Duwiejua, M.; Zeitlin, I. J.; Waterman, P. G.; Chapman, J.; Mhango, G. J.; Provan, G. J.
CS Dep. Physiol. Pharmacol., Univ. Strathclyde, Glasgow, G1 1XW, UK
SO Planta Med. (1993), 59(1), 12-16
CODEN: PLMEAA; ISSN: 0032-0943
DT Journal
LA English
AB The antiinflammatory activities of exts. from the resins of four species of the plant family **Burseraceae**, **Boswellia** dalzielli, B. carteri (gum **olibanum**), Commiphora mulkul, and C. incisa, were studied. The aq. exts. of the resins of B. dalzielli, C. incisa, and C. mukul significantly inhibited both the maximal edema response and the total edema response during 6 h of carrageenan-induced rat paw edema. The octanordammarane triterpenes, mansumbinone and mansumbionic acid, isolated from the resin of C. incisa, were sepd. and tested. Administered prophylactically, mansumbinone proved to be more than 20 times less potent than indomethacin and prednisolone in inhibiting carrageenan-induced rat paw edema. However, the molar potency of mansumbionoic acid was within one order of magnitude of those of indomethacin and prednisolone. The antiinflammatory action of the acid on the carrageenan-induced edema was dose-related between 1.3 .times. 10-5 and 2.5 .times. 10-4 mol kg-1 when given before the inflammatory stimulus. The acid was able to reverse an established carrageenan-induced inflammatory response when administered 2 h after induction. Daily administration of mansumbinoic acid at a single dose level (1.5 .times. 10-4 mol kg-1) significantly reduced joint swelling in adjuvant **arthritis** in rats. The results indicated that this compd. is worthy of further investigation as an antiinflammatory drug.

L52 ANSWER 17 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1993:160662 HCAPLUS
DN 118:160662
TI Combination induction of cell differentiation of HL-60 cells by daidzein (S86019) and BC-4 or ARA-c
AU Jing, Y. K.; Han, R.
CS Inst. Mater. Med., Chin. Acad. Med. Sci., Beijing, 100050, Peop. Rep. China
SO Yaoxue Xuebao (1993), 28(1), 11-16
CODEN: YHHPAL; ISSN: 0513-4870
DT Journal
LA Chinese
AB The cell differentiation of HL-60 cells induced by single treatment of low

concns. of daidzein (S86019), BC-4 (active principle of **Boswellia** carterii) or Ara-C was not impressive. However, when daidzein and BC-4 were used in combination 80% of HL-60 cells exhibited NBT redn. and 82% of the cells showed phagocytosis after four days exposure. When HL-60 cells were exposed to combination of daidzein and Ara-c, 70% of the cells exhibited NBT redn. and phagocytosis. Flow cytometry indicated that the majority of the cells were blocked at G1 phase when treated with daidzein-BC-4 or daidzein-Ara-C.

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L52 ANSWER 18 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1993:144 HCAPLUS
DN 118:144
TI A sensitive and relevant model for evaluating anti-inflammatory activity - papaya latex-induced rat paw inflammation
AU Gupta, O. P.; Sharma, N.; Chand, D.
CS Dep. Pharmacol., Reg. Res. Lab., Jammu-Tawi, India
SO J. Pharmacol. Toxicol. Methods (1992), 28(1), 15-19
CODEN: JPTMEZ; ISSN: 1056-8719
DT Journal
LA English
AB A new model employing latex of papaya as an inflammagen has been developed for testing anti-inflammatory activity. The latex (exudate) was harvested from the unripe papaya fruit, which had been dried under vacuum. The latex was then suspended in 0.05 M sodium acetate buffer. This suspension when injected in rat hind paw produced concn.-dependent inflammation. At a concn. of 0.25%, 0.1 mL was found to be ideal for evaluating anti-inflammatory activity of test drugs. This concn. produced 70%-100% inflammation lasting for about 5 h with a max. effect at 3 h. The test drugs employed were prednisolone, aspirin, indomethacin, phenylbutazone, ibuprofen, piroxicam, chloroquine, levamisole, and a mixt. of **boswellic** acids. For comparison, these drugs were also tested against carrageenan-induced inflammation. All the test drugs-steroidal, aspirin, and non-aspirin-like-showed anti-inflammatory activity against latex-induced inflammation. The activity of chloroquine, levamisole, and **boswellic** acids was significantly more against latex as compared with that of the carrageenan model. The inflammation caused by latex may be attributed to both its hydrolytic enzymes-papain and chymopapain-and glutathione, the activator of these enzymes. These enzymes seem to act like lysosomal enzymes that are released in inflammatory disease processes which mediate inflammation by stimulating the synthesis of prostaglandins. The papaya latex-induced inflammation model appears to be a sensitive, broad-based, and relevant one likely to prove useful for discovering new and effective drugs against inflammation and **rheumatoid arthritis**.

L52 ANSWER 19 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1992:584502 HCAPLUS
DN 117:184502
TI Anticomplementary activity of **boswellic** acids. An inhibitor of C3-convertase of the classical complement pathway
AU Kapil, Aruna; Moza, Nalini
CS Pharmacol. Div., Reg. Res. Lab., Jammu Tawi, 180 001, India
SO Int. J. Immunopharmacol. (1992), 14(7), 1139-43
CODEN: IJIMDS; ISSN: 0192-0561
DT Journal
LA English
AB **Boswellic** acids (BA), anti-inflammatory and anti-**arthritic** principle/s of **Boswellia** serrata, were found to possess anticomplementary activity. They inhibit the in vitro

immunohemolysis of antibody-coated sheep erythrocytes by pooled guinea-pig serum. The reduced immunohemolysis was found to be due to inhibition of C3-convertase of the classical complement pathway. The threshold concn. for inhibiting C3-convertase was found to be 100 .mu.g. However, higher concns. of BA showed const. inhibitory effects on immunohemolysis. BA also exhibited weak inhibitory effects on individual components of the complement system. In vivo administration of BA also showed the inhibitory effect on guinea-pig serum.

L52 ANSWER 20 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1991:409081 HCAPLUS
DN 115:9081
TI Synthesis, anti-inflammatory and anti-**arthritic** activity of newer .beta.-**boswellic acid** derivatives
AU Rangari, Vinod; Gupta, V. N.; Atal, C. K.
CS Reg. Res. Lab., Jammu Tawi, 180 001, India
SO Indian J. Pharm. Sci. (1990), 52(3), 158-60
CODEN: IJSIDW; ISSN: 0250-474X
DT Journal
LA English
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB 3-Oxo-.beta.-**boswellic acid** Me ester was derivatized using different arom. aldehydes yielding corresponding arylidene derivs. I [R = H, 3-OH, 3-NO2, 4-OMe, 4-Me2N, 4-NO2, 3,4-(MeO)2]. Cyclization of I with hydrazine hydrate gave pyrazoline derivs. II. The compds. were characterized spectrally. The pyrazoline derivs. were screened for anti-inflammatory and anti-**arthritic** activity.
IT **631-69-6P**, .beta.-**Boswellic acid**
RL: PREP (Preparation); RCT (Reactant)
(isolation and esterification of)

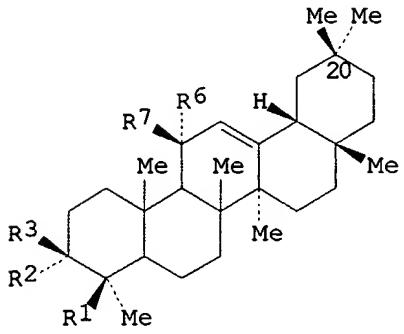
L52 ANSWER 21 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1990:545330 HCAPLUS
DN 113:145330
TI Pentacyclic triterpenoid compounds as topoisomerase inhibitors or cell differentiation inducers
IN Lee, Yue Wei; Fang, Qicheng; Wang, Zhenguo; Li, Dehua; Cook, C. Edgar
PA Research Triangle Institute, USA
SO PCT Int. Appl., 54 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9001937	A1	19900308	WO 89-US3581	19890824
	W: AU, DK, JP, KR, NO				
	RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
	CA 1330944	A1	19940726	CA 89-608654	19890817
	AU 8943033	A1	19900323	AU 89-43033	19890824
	AU 630374	B2	19921029		
	CN 1043131	A	19900620	CN 89-107605	19890824
	EP 431076	A1	19910612	EP 89-910793	19890824

	EP 431076	B1	19931013		
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
	JP 04500209	T2	19920116	JP 89-510077	19890824
	JP 2828295	B2	19981125		
	AT 95699	E	19931015	AT 89-910793	19890824
	US 5064823	A	19911112	US 90-517176	19900501
	NO 9100696	A	19910221	NO 91-696	19910221
	DK 9100313	A	19910222	DK 91-313	19910222
PRAI	US 88-235903	19880824			
	EP 89-910793	19890824			
	WO 89-US3581	19890824			

OS MARPAT 113:145330

GI



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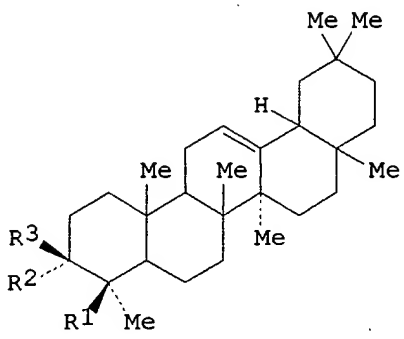

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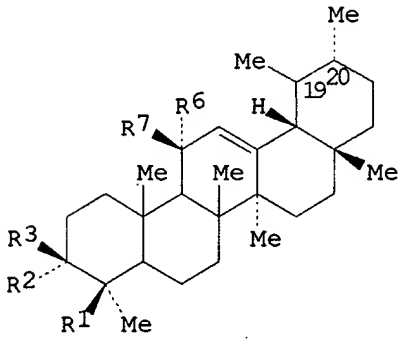
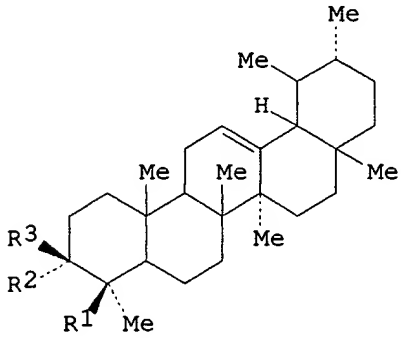


III



IV

AB Pentacyclic triterpenoids I, II, III, and IV (R1 = COOR4, H, C1-4 alkyl, CONH2, CONHR5, etc.; R4, R5 = (di)(tri)(mono)saccharide; R2, R3 = H, OR4, NH2, R5, NHR5, etc.; R6, R7 = R2, R3) are inhibitors of topoisomerases I and II. They can be used to treat various **cancers** and for inducing cellular differentiation. Thus, a 1:1 mixt. of .alpha.-**boswellic acid** acetate and .beta.-**boswellic acid** acetate (purified from oleogum resin) at 100 mg/kg increased av. survival time of leukemic mice to 22.9 days, vs. 15.7 days for untreated controls.

IT **631-69-6**

RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(**neoplasm** inhibitor)

L52 ANSWER 22 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1990:30360 HCAPLUS
DN 112:30360
TI Studies on the metabolism of glycosaminoglycans under the influence of new herbal anti-inflammatory agents
AU Reddy, G. Kesava; Chandrakasan, Gowri; Dhar, S. C.
CS Dep. Biochem., Cent. Leather Res. Inst., Madras, 600 020, India
SO Biochem. Pharmacol. (1989), 38(20), 3527-34
CODEN: BCPCA6; ISSN: 0006-2952
DT Journal
LA English
AB The in vivo effect of a herbal-based, nonsteroidal anti-inflammatory product, **salai** guggal, prepd. from the gum resin exudate of **Boswellia** serrata and its active principle "**boswellic** acids" on glycosaminoglycan metab. was studied in rats. The biosynthesis of sulfated glycosaminoglycans was evaluated by the uptake of [35S]sulfate, and the content of glycosaminoglycans was measured in specimens of skin, liver, **kidney** and spleen. Data obtained with the **boswellic** acids and **salai** guggal were compared with those with ketoprofen. A redn. in glycosaminoglycan biosynthesis was obsd. in rats treated with all of the drugs. Glycosaminoglycan content was decreased in the ketoprofen-treated group, whereas that of the **boswellic** acid- or **salai** guggal-treated groups remained unaltered. The catabolism of glycosaminoglycans was followed by estg. the activities of lysosomal glycohydrolases, namely .beta.-glucuronidase, .beta.-N-acetylglucosaminidase, cathepsin B1, cathepsin B2 and cathepsin D, in tissues and by estg. the urinary excretion of hexosamine and uronic acid. The degrdn. of glycosaminoglycans was reduced markedly in all drug-treated animals as compared to controls. The potential of **boswellic** acids and **salai** guggal is discussed in the light of changes in the metab. of glycosaminoglycans.

L52 ANSWER 23 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1990:30350 HCAPLUS
DN 112:30350
TI Anti-**arthritic** activity of **boswellic** acids in bovine serum albumin (BSA)-induced **arthritis**
AU Sharma, M. L.; Bani, S.; Singh, G. B.
CS Reg. Res. Lab., CSIR, Jammu Tawi, 180 001, India
SO Int. J. Immunopharmacol. (1989), 11(6), 647-52
CODEN: IJIMDS; ISSN: 0192-0561
DT Journal
LA English
AB The effect of **boswellic** acids on bovine serum albumin (BSA)-induced **arthritis** in rabbits was studied. Oral administration of **boswellic** acids (25, 50, and 100 mg/kg/day) reduced the population of leukocytes in a BSA-injected knee and changed the electrophoretic pattern of the synovial fluid proteins. The local injection of **boswellic** acids (5, 10, and 20 mg) into the knee 15 min prior to BSA challenge also reduced the infiltration of leukocytes into the knee joint, reduced the infiltration of leukocytes into the pleural cavity, and inhibited the migration of PMN in vitro. The leukocyte-inhibitory activity of **boswellic** acids was not due to their cytotoxic effect. The **boswellic** acids did not show any detergent or surfactant properties.

L52 ANSWER 24 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1988:16003 HCAPLUS
DN 108:16003

TI Effect of a new nonsteroidal anti-inflammatory agent on lysosomal stability in adjuvant induced **arthritis**
AU Reddy, G. Kesava; Dhar, S. C.
CS Dep. Biochem., Cent. Leather Res. Inst., Madras, India
SO Ital. J. Biochem. (1987), 36(4), 205-17
CODEN: IJBIAC; ISSN: 0021-2938
DT Journal
LA English
AB Effects of the new natural anti-inflammatory agent **salai**-guggal (I) and its active principle, **boswellic** acid (II), on stability of lysosomes in liver, **kidneys**, and spleen were studied in rats with adjuvant **arthritis**. The rats were given orally 100 mg I or II/kg 2 wks. after the induction, and their lysosomes were isolated 5 wks. later. Activity of .beta.-glucuronidase (III) was used as an indicator of lysosomal stability. **Arthritis** increased the total tissue III in liver and **kidney**. The rates of III release from lysosomes and the ratios of sol.-to-lysosomal III activity were increased due to **arthritis**, but decreased after treatment with I or II in all 3 tissues. I was more effective than II. I and II have apparently a protective effect on lysosomal integrity which is an important factor in the pathogenesis of **arthritic** syndrome.

L52 ANSWER 25 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1987:568449 HCAPLUS
DN 107:168449
TI Urinary excretion of connective tissue metabolites under the influence of a new non-steroidal anti-inflammatory agent in adjuvant induced **arthritis**
AU Reddy, G. Kesava; Dhar, S. C.; Singh, G. B.
CS Dep. Biochem., Cent. Leather Res. Inst., Madras, 600 020, India
SO Agents Actions (1987), 22(1-2), 99-105
CODEN: AGACBH; ISSN: 0065-4299
DT Journal
LA English
AB The therapeutic effect on **boswellic** acids and **salai** guaggal in adjuvant-induced **arthritic** rats in relation to urinary excretion of connective tissue metabolites (viz. hydroxyproline, hexosamine and uronic acid) was investigated. Compared to controls, the **arthritic** animals showed an increase in the excretion of these metabolites in urine. The elevated levels of urinary hydroxyproline (free, total, nondialyzable and dialyzable), hexosamine and uronic acid in the **arthritic** animals were slightly decreased in the acute phase and significantly decreased in the chronic phase of the disease following administration of **boswellic** acids or **salai** guggal.

L52 ANSWER 26 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1987:131398 HCAPLUS
DN 106:131398
TI Biochemical investigations of a new nonsteroidal anti-inflammatory agent in adjuvant induced **arthritis** in relation to serum glycohydrolases and glycoproteins
AU Reddy, G. Kesava; Dhar, S. C.; Singh, G. B.
CS Cent. Leather Res. Inst., Madras, 600 020, India
SO Leather Sci. (Madras) (1986), 33(7), 192-9
CODEN: LESCA9; ISSN: 0023-9771
DT Journal
LA English
AB **Salai** guggal (oleoresins from **Boswellia** serrata) and its triterpene acids were anti-inflammatory in rats with adjuvant-induced

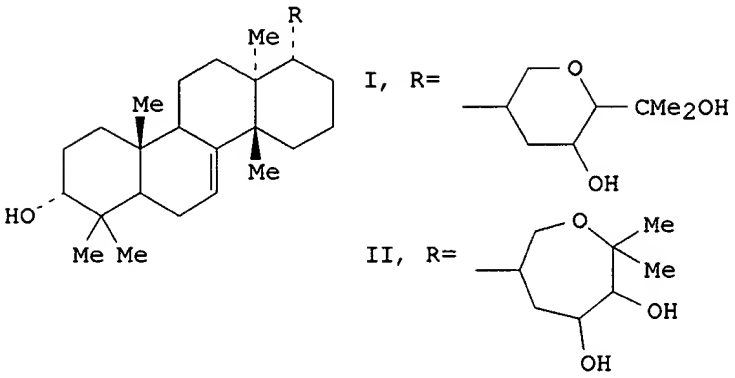
arthritis. The drugs also decreased the levels of glycohydrolases and glycoproteins, which were higher in the **arthritic** animals compared to those in control animals.

L52 ANSWER 27 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1986:418039 HCAPLUS
DN 105:18039
TI Pharmacology of an extract of **salai** guggal ex-**Boswellia** serrata, a new nonsteroidal anti-inflammatory agent
AU Singh, G. B.; Atal, C. K.
CS Pharmacol. Dep., Reg. Res. Lab., Jammu-Tawi, 180 001, India
SO Agents Actions (1986), 18(3-4), 407-12
CODEN: AGACBH; ISSN: 0065-4299
DT Journal
LA English
AB Pharmacol. evaluation of alc. ext. of **salai** guggal (AESG) has been carried out in exptl. animals. AESG displayed marked anti-inflammatory activity in carrageenan induced edema in rats and mice and dextran edema in rats. It was equally effective in adrenalectomized rats. In formaldehyde and adjuvant **arthritis**, AESG produced prominent anti-**arthritic** activity but no significant effect was obsd. in cotton pellet-induced granuloma test. It inhibited inflammation induced increase in serum transaminase levels and leukocyte counts but lacked any analgesic or antipyretic effects. The gestation period or parturition time in pregnant rats or onset time of castor oil-induced diarrhea was unaffected by AESG and no significant effect was seen on cardiovascular, **respiratory** and central nervous system functions. No ulcerogenic effects were found in the rat stomach. The oral and i.p. LD50 was greater than 2 g/kg in mice and rats.

L52 ANSWER 28 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1985:534646 HCAPLUS
DN 103:134646
TI Antitumor activities of several phytopolysaccharides
AU Moon, Chang Kiu; Park, Kwang Sik; Lee, Soo Hwan; Yoon, Yeo Pyo
CS Coll. Pharm., Seoul Natl. Univ., Seoul, 151, S. Korea
SO Arch. Pharmacal Res. (1985), 8(1), 42-4
CODEN: APHRDQ; ISSN: 0253-6269
DT Journal
LA English
AB Polysaccharides isolated from 12 pharmaceutical plants (used against tumors in oriental herb medicine) were examd. for antitumor activities. In mice implanted with sarcoma 180 cells, polysaccharides from Forsythia corea, Curcuma zedoaria, Albizzia julibrissin, Prunus persica, Foeniculum vulgare and Daphne pseudogenkwa showed inhibition rates of 88.0%, 61.1%, 73.0%, 72.8%, 55.1% and 71.7%, resp. Significant, prolongation of life span was obsd. only with F. corea (18.1%). The other 6 polysaccharides from **Olibanum**, Lonicera japonica, Rheum coreanum, Scirpus maritimus, Gleditchia officinalis and Brassica juncea showed negligible inhibition rates.

L52 ANSWER 29 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1977:478324 HCAPLUS
DN 87:78324
TI Cytotoxic agents from Bursera klugii (**Burseraceae**). I: isolation of sapelins A and B
AU Jolad, S. D.; Wiedhopf, R. M.; Cole, J. R.
CS Coll. Pharm., Univ. Arizona, Tucson, Ariz., USA
SO J. Pharm. Sci. (1977), 66(6), 889-90

CODEN: JPMSAE
DT Journal
LA English
GI



AB A crude chloroform-sol. fraction of the ethanol ext. of the leaves of B. klugii showed activity against 2 test systems, the P-388 lymphocytic leukemia (3PS) and the human epidermoid **carcinoma** of the nasopharynx (9KB). The PS activity was due to 2 constituents, sapelin A (I) [26790-93-2] and sapelin B (II) [26790-94-3].

L52 ANSWER 30 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1977:465330 HCAPLUS
DN 87:65330
TI Cytotoxic agents from Bursera morelensis (**Burseraceae**): deoxypodophyllotoxin and a new lignan, 5'-desmethoxydeoxypodophyllotoxin
AU Jolad, S. D.; Wiedhopf, R. M.; Cole, J. R.
CS Coll. Pharm., Univ. Arizona, Tucson, Ariz., USA
SO J. Pharm. Sci. (1977), 66(6), 892-3
CODEN: JPMSAE
DT Journal
LA English
GI For diagram(s), see printed CA Issue.
AB The isolation and identification of deoxypodophyllotoxin (I) and a new lignan named morelensin (II, 5'-desmethoxydeoxypodophyllotoxin) from the dried exudate of B. morelensis were reported. I showed high activity in the KB and PS test systems; II, although highly active against the KB test system, demonstrated only marginal activity against the PS test system.

L52 ANSWER 31 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1973:47709 HCAPLUS
DN 78:47709
TI Antitumor activity of Bursera schlechtendalii (**Burseraceae**). Isolation and structure determination of two new lignans
AU McDoniel, P. B.; Cole, J. R.
CS Coll. Pharm., Univ. Arizona, Tucson, Ariz., USA
SO J. Pharm. Sci. (1972), 61(12), 1992-4
CODEN: JPMSAE
DT Journal
LA English
GI For diagram(s), see printed CA Issue.
AB B. schlechtendalii (**Burseraceae**) has shown antitumor activity

against the 9KB (**adenocarcinoma** of nasal pharynx) test system. Two new lignans isolated from the biol. active plant fraction were identified as (-)-trans-2-(3,4,5-trimethoxybenzyl)-3(3,4-methylenedioxybenzyl) butyrolactone (I) and (-)-trans-2-(3,4-dimethoxybenzyl)-3-- (3,4-methylenedioxybenzyl)butyrolactone (II). In addn., the triterpene .alpha.-amyrin was isolated from the active fraction.

L52 ANSWER 32 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1971:431255 HCAPLUS
DN 75:31255
TI Isolation and characterization of potential antitumor agents from Bursera schlechtendalii Family **Burseraceae**
AU McDoniel, Phillip B.
CS Univ. Arizona, Tucson, Ariz., USA
SO (1970) 72 pp. Avail.: Univ. Microfilms, Ann Arbor, Mich., Order No. 70-18,178
From: Diss. Abstr. Int. B 1970, 31(4), 1853-4
DT Dissertation
LA English
AB Unavailable

L52 ANSWER 33 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1970:454418 HCAPLUS
DN 73:54418
TI Plant antitumor agents. I
AU Mukerji, S.; Banerjee, A. K.; Mitra, B. N.
CS Indian Inst. Exptl. Med., Calcutta, India
SO Indian J. Pharm. (1970), 32(2), 48-9
CODEN: IJPAAO
DT Journal
LA English
AB Phytochem. and pharmacol. properties of exts. of the barks, root, and stem of Saraca indica and **Boswellia** serrata, Xanthium strumarium, and Geranium bourbon, resp., were examd. on Ehrlich ascites **carcinoma** and S-180 tumors transplanted in Swiss and A strain inbred mice. The aq. exts. of S. indica bark increased the life span of mice with Ehrlich ascites **carcinoma** by 24% and in the case of S-180 decreased tumor wt. by 24%. The MeOH and aq. root exts. (contg. a glycoside, m. 242.degree.) of X. strumarium increased the life span with Ehrlich ascites **carcinoma** by 14% and 39.8%, resp.; the MeOH ext. reduced tumor wt. by 13% in S-180. At least 4, 6, and 32 unidentified compds. were isolated or detected by thin layer chromatog. in exts. from S. indica, B. serrata, and G. bourbon, resp.

L52 ANSWER 34 OF 34 HCAPLUS COPYRIGHT 1999 ACS
AN 1969:491187 HCAPLUS
DN 71:91187
TI Antitumor agents from Bursera fagaroides (**Burseraceae**) (.beta.-peltatin A-methyl ether and 5'demethoxy-.beta.-peltatin A-methyl ether)
AU Bianchi, Ennio; Sheth, K.; Cole, Jack Robert
CS Coll. of Pharm., Univ. of Arizona, Tucson, Ariz., USA
SO Tetrahedron Lett. (1969), (32), 2759-62
CODEN: TELEAY
DT Journal
LA English
GI For diagram(s), see printed CA Issue.
AB The CHCl3 ext. of the Mexican plant Bursera fagaroides chromatographed

successively over Al2O3 and silica gel G gave .beta.-peltatin A-methyl ether (I) and a new compd. 5'-demethoxy-.beta.-peltatin A-methyl ether (II), with biol. activity in the Walker **carcinoma** 256 (intramuscular) tumor system at levels of 10% test-control at 12.5 mg./kg. and 20% test-control at 100 mg./kg., resp. I, C23H24O8, m/e 428 (M+) showed satisfactory m.p. and spectroscopic data. I treated with NaOAc gave the known .beta.-peltatin B-methyl ether. II, C22H22O7, m/e 398 (M+), m. 142-3.degree. (MeOH, Me2CO), m. 167.0-7.5 and 182.0-2.5.degree., after keeping 24 hrs. at 100.degree. in high vacuum, exhibited N.M.R. signals indicating the presence of 3 OMe groups and a methylenedioxy group. The mass fragmentation of II confirmed the assigned location of the OMe groups. The A-type isomer (trans 2/3, cis 3/4) II, [.alpha.]24D-146.degree., was converted by alkali treatment to a B-type isomer (cis 2/3, trans 3/4), [.alpha.]24D 23.degree..

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L55            0 S L54 AND L15
L56            3 S L54 AND L16
L57            4 S L54 AND ELASTASE
L58            1 S L54 AND (PLASMIN OR FIBRINOLYSIN OR THROMBOLYSIN)
L59            5 S L56-L58
                 E AMMON H/AU
L60          228 S E3,E6,E7,E12,E13
                 E SAFAYHI H/AU
L61           46 S E3-E5
L62           21 S L54 AND L60-L61
L63           12 S L62 AND (00520/CC OR CONFERENCE/DT OR ABSTRACT OR POSTER OR M
L64           17 S L59,L63

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L64  ANSWER 1 OF 17  BIOSIS  COPYRIGHT 1999 BIOSIS
AN   1998:293506  BIOSIS
DN   PREV199800293506
TI   Identification of a genuine triterpene from the gum of Boswellia
     serrata with 5-lipoxygenase activity stabilizing properties.
AU   Boden, S. E.; Sailer, E.-R.; Taneja, S. C.; Ammon, H. P. T.;
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Safayhi, H.
CS Dep. Pharmacology, Inst. Pharmaceutical Sciences, Univ. Tuebingen, Auf der Morgenstelle 8, D-72076 Tuebingen Germany
SO Naunyn-Schmiedeberg's Archives of Pharmacology, (1998) Vol. 357, No. 4 SUPPL, pp. R40.
Meeting Info.: 39th Spring Meeting of the German Society for Experimental and Clinical Pharmacology and Toxicology Mainz, Germany March 17-19, 1998 German Society for Experimental and Clinical Pharmacology and Toxicology . ISSN: 0028-1298.
DT **Conference**
LA English
CC Pharmacology - Drug Metabolism; Metabolic Stimulators *22003
Cytology and Cytochemistry - Animal *02506
Biochemical Studies - General *10060
Biochemical Studies - Lipids *10066
Enzymes - Physiological Studies *10808
Immunology and Immunochemistry - General; Methods *34502
Pharmacognosy and Pharmaceutical Botany *54000
General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals *00520
BC Burseraceae 25695
Muridae 86375
IT Major Concepts
Pharmacognosy (Pharmacology)
IT Parts, Structures, & Systems of Organisms
neutrophil: immune system
IT Chemicals & Biochemicals
leukotriene; 3-oxo-tirucall-8,24-dien-21-oic acid: metabolic agent, natural product, triterpene; 5-lipoxygenase: stabilization
IT Miscellaneous Descriptors
Meeting Abstract
ORGN Super Taxa
Burseraceae: Dicotyledones, Angiospermae, Spermatophyta, Plantae; Muridae: Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
rat (Muridae); **Boswellia**-serrata (Burseraceae)
ORGN Organism Superterms
Angiosperms; Animals; Chordates; Dicots; Mammals; Nonhuman Mammals; Nonhuman Vertebrates; Plants; Rodents; Spermatophytes; Vascular Plants; Vertebrates
RN 80619-02-9 (5-LIPOXYGENASE)

L64 ANSWER 2 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1998:293392 BIOSIS
DN PREV199800293392
TI Inhibition of human topoisomerase type I and II by **boswellic** acids.
AU Syrovets, T. (1); Buechele, B. (1); **Safayhi, H.**; **Ammon, H. P. T.**; Simmet, T. (1)
CS (1) Inst. Pharmacology Toxicology and Natural Products, Univ. Ulm, 89081 Ulm Germany
SO Naunyn-Schmiedeberg's Archives of Pharmacology, (1998) Vol. 357, No. 4 SUPPL, pp. R11.
Meeting Info.: 39th Spring Meeting of the German Society for Experimental and Clinical Pharmacology and Toxicology Mainz, Germany March 17-19, 1998 German Society for Experimental and Clinical Pharmacology and Toxicology . ISSN: 0028-1298.
DT **Conference**
LA English

CC Pharmacology - General *22002
Genetics and Cytogenetics - General *03502
Biochemical Studies - General *10060
Biochemical Studies - Nucleic Acids, Purines and Pyrimidines *10062
Enzymes - Physiological Studies *10808
General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals *00520
BC Hominidae 86215
IT Major Concepts
Enzymology (Biochemistry and Molecular Biophysics); Pharmacology
IT Chemicals & Biochemicals
acetyl-**boswellic** acid: antineoplastic agent, enzyme inhibitor agent; acetyl-11-keto-beta-**boswellic** acid: antineoplastic agent, enzyme inhibitor agent; **boswellic** acid: enzyme inhibitor agent; topoisomerase type I; topoisomerase type II; DNA: enzyme substrate
IT Miscellaneous Descriptors
Meeting Abstract
ORGN Super Taxa
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
human (Hominidae)
ORGN Organism Superterms
Animals; Chordates; Humans; Mammals; Primates; Vertebrates
RN 80449-01-0 (TOPOISOMERASE)
67416-61-9 (ACETYL-11-KETO-BETA-**BOSWELLIC** ACID)

L64 ANSWER 3 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1997:231659 BIOSIS
DN PREV199799530862
TI Analysis of pentacyclic triterpene-mediated antiproliferative effects on malignant melanoma cells.
AU Bogenrieder, T. (1); Glaessl, A.; Bosserhoff, A.-K.; Sailer, E.-R.; Landthaler, M.; **Ammon, H. P. T.**; Stolz, W.
CS (1) Univ. Regensburg, Regensburg 93042 Germany
SO Proceedings of the American Association for Cancer Research Annual Meeting, (1997) Vol. 38, No. 0, pp. 216-217.
Meeting Info.: Eighty-eighth Annual Meeting of the American Association for Cancer Research San Diego, California, USA April 12-16, 1997
ISSN: 0197-016X.
DT **Conference**; Abstract
LA English
CC **General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520**
Cytology and Cytochemistry - Human *02508
Pathology, General and Miscellaneous - Therapy *12512
Pharmacology - General *22002
Neoplasms and Neoplastic Agents - Therapeutic Agents; Therapy *24008
Developmental Biology - Embryology - Morphogenesis, General *25508
In Vitro Studies, Cellular and Subcellular *32600
Pharmacognosy and Pharmaceutical Botany *54000
BC Burseraceae 25695
Hominidae *86215
IT Major Concepts
Cell Biology; Development; Oncology (Human Medicine, Medical Sciences); Pathology; Pharmacognosy (Pharmacology); Pharmacology
IT Chemicals & Biochemicals
BETULINIC ACID
IT Miscellaneous Descriptors

ACETYL-11-KETO-BETA-**BOSWELLIC** ACID; ANALYSIS; ANTINEOPLASTIC-DRUG; ANTIPROLIFERATIVE EFFECTS; BETULINIC ACID; GROWTH INHIBITION; MELANOMA; NEOPLASTIC DISEASE; PENTACYCLIC TRITERPENE; PHARMACOGNOSY; SK-MEL CELL LINE; TUMOR BIOLOGY

ORGN Super Taxa
Burseraceae: Dicotyledones, Angiospermae, Spermatophyta, Plantae; Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name
Boswellia serrata (Burseraceae); HL-60 (Hominidae): cell line

ORGN Organism Superterms
angiosperms; animals; chordates; dicots; humans; mammals; plants; primates; spermatophytes; vascular plants; vertebrates

RN 472-15-1 (BETULINIC ACID)

L64 ANSWER 4 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1997:231493 BIOSIS
DN PREV199799530696
TI Acetyl-11-keto-beta-**boswellic** acid induces apoptosis in HL60 and CCRF-CEM cells and inhibits topoisomerase I.
AU Hoernlein, R. F. (1); Orlikowsky, T.; Zehrer, C.; Niethammer, D.; Sailer, E. R.; Dannecker, G. E.; **Ammon, H. P. T.**
CS (1) Inst. Pharmaceutical Sci., Auf der Morgenstelle 8, 72076 Tuebingen Germany
SO Proceedings of the American Association for Cancer Research Annual Meeting, (1997) Vol. 38, No. 0, pp. 192.
Meeting Info.: Eighty-eighth Annual Meeting of the American Association for Cancer Research San Diego, California, USA April 12-16, 1997
ISSN: 0197-016X.
DT **Conference**; Abstract
LA English
CC **General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520**
Cytology and Cytochemistry - Animal *02506
Cytology and Cytochemistry - Human *02508
Biochemical Studies - General *10060
Biophysics - General Biophysical Studies *10502
Enzymes - General and Comparative Studies; Coenzymes *10802
Blood, Blood-Forming Organs and Body Fluids - General; Methods *15001
Neoplasms and Neoplastic Agents - General *24002
Developmental Biology - Embryology - General and Descriptive *25502
BC Bovidae 85715
Hominidae *86215
IT Major Concepts
Biochemistry and Molecular Biophysics; Blood and Lymphatics (Transport and Circulation); Cell Biology; Development; Enzymology (Biochemistry and Molecular Biophysics); Oncology (Human Medicine, Medical Sciences)
IT Chemicals & Biochemicals
TOPOISOMERASE; 5-LIPOXYGENASE; ALPHA-AMYRIN; CD95
IT Miscellaneous Descriptors
ACETYL-11-KETO-BETA-**BOSWELLIC** ACID; ALPHA-AMYRIN; APOPTOSIS; BLOOD AND LYMPHATICS; CD95 RECEPTOR; CYTOLOGICAL METHOD; ENDOCRINE SYSTEM; ENZYME INHIBITOR; ENZYMOLOGY; FLOW CYTOMETRY; HUMAN LEUKEMIA CELLS; IMMUNE SYSTEM; INHIBITION; THYMUS; TOPOISOMERASE-I; TUMOR BIOLOGY; 5-LIPOXYGENASE INHIBITOR
ORGN Super Taxa
Bovidae: Artiodactyla, Mammalia, Vertebrata, Chordata, Animalia; Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
calf (Bovidae); CCRF-CEM (Hominidae): cell line; HL60 (Hominidae): cell

line
ORGN Organism Superterms
animals; artiodactyls; chordates; humans; mammals; nonhuman mammals; nonhuman vertebrates; primates; vertebrates
RN 80449-01-0 (TOPOISOMERASE)
80619-02-9 (5-LIPOXYGENASE)
638-95-9 (ALPHA-AMYRIN)
81271-93-4 (CD95)

L64 ANSWER 5 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1997:216445 BIOSIS
DN PREV199799522949
TI Inhibition by **boswellic** acids of human leukocyte **elastase**.
AU Safayhi, Hasan (1); Rall, Beatrice; Sailer, Eckart-Roderich; Ammon, Hermann P. T.
CS (1) Inst. Pharm. Sci., Univ. Tuebingen, Auf der Morgenstelle 8, D-72076 Tuebingen Germany
SO Journal of Pharmacology and Experimental Therapeutics, (1997) Vol. 281, No. 1, pp. 460-463.
ISSN: 0022-3565.
DT Article
LA English
AB Frankincense extracts and **boswellic** acids, biologically active pentacyclic triterpenes of frankincense, block leukotriene biosynthesis and exert potent anti-inflammatory effects. Screening for additional effects of **boswellic** acids on further proinflammatory pathways, we observed that acetyl-11-keto-beta-**boswellic** acid, an established direct, nonredox and noncompetitive 5-lipoxygenase inhibitor, decreased the activity of human leukocyte **elastase** (HLE) in vitro with an IC-50 value of about 15 mu-M. Among the pentacyclic triterpenes tested in concentrations up to 20 mu-M, we also observed substantial inhibition by beta-**boswellic** acid, amyrin and ursolic acid, but not by 18-beta-glycyrrhetinic acid. The data show that the dual inhibition of 5-lipoxygenase and HLE is unique to **boswellic** acids: other pentacyclic triterpenes with HLE inhibitory activities (e.g., ursolic acid and amyrin) do not inhibit 5-lipoxygenase, and leukotriene biosynthesis inhibitors from different chemical classes (e.g., NDGA, MK-886 and ZM-230,487) do not impair HLE activity. Because leukotriene formation and HLE release are increased simultaneously by neutrophil stimulation in a variety of inflammation- and hypersensitivity-based human diseases, the reported blockade of two proinflammatory enzymes by **boswellic** acids might be the rationale for the putative antiphlogistic activity of acetyl-11-keto-beta-**boswellic** acid and derivatives.
CC Biochemical Studies - General 10060
Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Enzymes - Physiological Studies *10808
Pathology, General and Miscellaneous - Inflammation and Inflammatory Disease *12508
Blood, Blood-Forming Organs and Body Fluids - Lymphatic Tissue and Reticuloendothelial System *15008
Pharmacology - Immunological Processes and Allergy *22018
BC Hominidae 86215
Muridae *86375
IT Major Concepts
Blood and Lymphatics (Transport and Circulation); Enzymology (Biochemistry and Molecular Biophysics); Pathology; Pharmacology
IT Chemicals & Biochemicals

ELASTASE
IT Miscellaneous Descriptors
ANIMAL MODEL; **BOSWELLIC** ACIDS; HUMAN LEUKOCYTE **ELASTASE**; INFLAMMATION; INHIBITION; PHARMACOLOGY
ORGN Super Taxa
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia; Muridae: Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
human (Hominidae); rat (Muridae)
ORGN Organism Superterms
animals; chordates; humans; mammals; nonhuman mammals; nonhuman vertebrates; primates; rodents; vertebrates
RN **9004-06-2 (ELASTASE)**

L64 ANSWER 6 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1997:104103 BIOSIS
DN PREV199799403306
TI Synthesis of a radio-iodinated photoaffinity analogue of the direct, non-redox, non-competitive 5-lipoxygenase inhibitor acetyl-11-keto-beta-**boswellic** acid.
AU Sailer, E. R.; Hoernlein, R. H.; Schneider, N.; **Ammon, H. P. T.**; **Safayhi, H.**
CS Inst. Pharmaceutical Sci., Univ. Tuebingen, Auf der Morgenstelle 8, D-72076 Tuebingen Germany
SO European Journal of Pharmaceutical Sciences, (1996) Vol. 4, No. SUPPL., pp. S113.
Meeting Info.: Third European Congress of Pharmaceutical Sciences Edinburgh, Scotland, UK September 15-17, 1996
ISSN: 0928-0987.
DT **Conference**; Abstract; **Conference**
LA English
CC **General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520**
Radiation - Radiation and Isotope Techniques *06504
Biochemical Methods - General *10050
Biochemical Studies - General *10060
Biophysics - Molecular Properties and Macromolecules *10506
Pharmacology - General *22002
IT Major Concepts
Biochemistry and Molecular Biophysics; Methods and Techniques; Pharmacology; Radiology (Medical Sciences)
IT Chemicals & Biochemicals
5-LIPOXYGENASE
IT Miscellaneous Descriptors
CHEMICAL SYNTHESIS; CHEMISTRY; NON-COMPETITIVE INHIBITOR; NON-REDOX INHIBITOR; PHARMACOLOGY; RADIO-IODINATED ACETYL-11-KETO-BETA-**BOSWELLIC** ACID PHOTOAFFINITY ANALOGUE; STRUCTURE-ACTIVITY RELATIONSHIP; SYNTHESIS; 5-LIPOXYGENASE INHIBITOR
RN 80619-02-9 (5-LIPOXYGENASE)

L64 ANSWER 7 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1997:104009 BIOSIS
DN PREV199799403212
TI The pentacyclic triterpene selective binding site of 5-lipoxygenase.
AU **Safayhi, H.**; Hoemiein, R. H.; **Ammon, H. P. T.**; Sailer, E. R.
CS Dep. Pharmacol., Inst. Pharmacetical Sci., Univ. Tuebingen, D-72076 Tubingen Germany
SO European Journal of Pharmaceutical Sciences, (1996) Vol. 4, No. SUPPL.,

pp. S79.
Meeting Info.: Third European Congress of Pharmaceutical Sciences Edinburgh, Scotland, UK September 15-17, 1996
ISSN: 0928-0987.
DT **Conference**; Abstract
LA English
CC **General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520**
Biochemical Studies - General *10060
Enzymes - General and Comparative Studies; Coenzymes *10802
Pharmacology - General *22002
IT Major Concepts
Biochemistry and Molecular Biophysics; Enzymology (Biochemistry and Molecular Biophysics); Pharmacology
IT Chemicals & Biochemicals
5-LIPOXYGENASE
IT Miscellaneous Descriptors
BIOSYNTHESIS; **BOSWELLIC** ACID; ENZYMOLOGY; LEUKOTRIENE; PENTACYCLIC TRITERPENE SELECTIVE EFFECTOR SITE; PHARMACOLOGY; 5-LIPOXYGENASE
RN 80619-02-9 (5-LIPOXYGENASE)

L64 ANSWER 8 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1997:103969 BIOSIS
DN PREV199799403172
TI Structure-activity-relationships of 5-lipoxygenase-inhibition by **boswellic** acids.
AU Sailer, E. R.; Hoernlein, R. H.; **Ammon, H. P. T.**; **Safayhi, H.**
CS Inst. Pharmaceutical Sci., Univ. Tuebingen, Auf der Morgenstelle 8, D-72076 Tuebingen Germany
SO European Journal of Pharmaceutical Sciences, (1996) Vol. 4, No. SUPPL., pp. S54.
Meeting Info.: Third European Congress of Pharmaceutical Sciences Edinburgh, Scotland, UK September 15-17, 1996
ISSN: 0928-0987.
DT **Conference**; Abstract
LA English
CC **General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520**
Biophysics - Molecular Properties and Macromolecules *10506
Enzymes - Chemical and Physical *10806
Pharmacology - Drug Metabolism; Metabolic Stimulators *22003
BC Muridae *86375
IT Major Concepts
Biochemistry and Molecular Biophysics; Enzymology (Biochemistry and Molecular Biophysics); Pharmacology
IT Chemicals & Biochemicals
5-LIPOXYGENASE; URSOLIC ACID
IT Miscellaneous Descriptors
ACETYL-11-KETO-BETA-**BOSWELLIC** ACID; AMYRIN; DRUG RECEPTORS; EFFECTOR SITE BINDING; ENZYMOLOGY; PENTACYCLIC TRITERPENES; PHARMACOLOGY; STRUCTURE-ACTIVITY RELATIONSHIP; URSOLIC ACID; 11-KETO-BETA-**BOSWELLIC** ACID METHYL ESTER; 5-LIPOXYGENASE
ORGN Super Taxa
Muridae: Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
rat (Muridae)
ORGN Organism Superterms

animals; chordates; mammals; nonhuman mammals; nonhuman vertebrates; rodents; vertebrates
RN 80619-02-9 (5-LIPOXYGENASE)
77-52-1 (URSOLIC ACID)

L64 ANSWER 9 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1996:304390 BIOSIS
DN PREV199699026746
TI Structure-activity-relationships of 5-lipoxygenase-inhibition by **boswellic** acids.
AU Sailer, E. R.; Hoernlein, R. F.; **Ammon, H. P. T.; Safayhi, H.**
CS Pharmazeutisches Inst., Univ. Tuebingen, Auf der Morgenstelle 8, D-72076 Tuebingen Germany
SO Naunyn-Schmiedeberg's Archives of Pharmacology, (1996) Vol. 353, No. 4 SUPPL., pp. R43.
Meeting Info.: 37th Spring Meeting of the German Society for Experimental and Clinical Pharmacology and Toxicology Mainz, Germany March 12-14, 1996
ISSN: 0028-1298.
DT **Conference**
LA English
CC **General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520**
Cytology and Cytochemistry - Animal 02506
Biochemical Studies - General *10060
Biophysics - General Biophysical Techniques 10504
Enzymes - Physiological Studies *10808
BC Muridae *86375
IT Major Concepts
Biochemistry and Molecular Biophysics; Enzymology (Biochemistry and Molecular Biophysics)
IT Miscellaneous Descriptors
ACETYL-11-KETO-BETA-**BOSWELLIC** ACID; **MEETING ABSTRACT**
ORGN Super Taxa
Muridae: Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
rat (Muridae)
ORGN Organism Superterms
animals; chordates; mammals; nonhuman mammals; nonhuman vertebrates; rodents; vertebrates

L64 ANSWER 10 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1996:65756 BIOSIS
DN PREV199698637891
TI Anti-**elastase** and anti-hyaluronidase activities of saponins and sapogenins from Hedera helix, Aesculus hippocastanum, and Ruscus aculeatus: Factors contributing to their efficacy in the treatment of venous insufficiency.
AU Facino, Roberto Maffei (1); Carini, Marina; Stefani, Rita; Saibene, Giancarlo Aldini And Luisella
CS (1) Istituto Chimico Farmaceutico Tossicologico, Fac. Pharm., Univ. Milan, Viale Abruzzi 42, I-20131 Milan Italy
SO Archiv der Pharmazie (Weinheim), (1995) Vol. 328, No. 10, pp. 720-724.
ISSN: 0365-6233.
DT Article
LA English
AB Triterpene and steroid saponins and sapogenins of medicinal plants (Aesculus hippocastanum L., Hedera helix L., Ruscus aculeatus L.) are

claimed to be effective for the treatment/prevention of venous insufficiency. In this work we evaluated the inhibitory effects of these plant constituents on the activity of **elastase** and hyaluronidase, the enzyme systems involved in the turnover of the main components of the perivascular amorphous substance. The results evidence that for Hedera helix L., the sapogenins only non-competitively inhibit hyaluronidase activity in a dose-dependent fashion, showing comparable IC-50 values (hederagenin IC-50 = 280.4 mu-M; oleanolic acid IC-50 = 300.2 mu-M): both the saponins hederacoside C and alpha-hederin are very weak inhibitors. The same behaviour is observed for serine protease porcine pancreatic **elastase**: the glycosides are devoid of inhibitory action, while genins are potent competitive inhibitors (oleanolic acid IC-50 = 5.1 mu-M; hederagenin IC-50 = 40.6 mu-M). Constituents from Aesculus hippocastanum L. show inhibitory effects only on hyaluronidase, and this activity is mainly linked to the saponin escin (IC-50 = 149.9 mu-M), less to its genin escinol (IC-50 = 1.65 mM). By contrast, ruscogenins from Ruscus aculeatus L., ineffective on hyaluronidase activity, exhibit remarkable anti-**elastase** activity (IC-50 = 119.9 mu-M; competitive inhibition). The mechanism of **elastase** inhibition by triterpene and steroid aglycones, with a nitroanilide derivative as substrate, is discussed.

CC Biochemical Studies - Sterols and Steroids *10067
Enzymes - Chemical and Physical *10806
Pharmacology - Cardiovascular System *22010
Plant Physiology, Biochemistry and Biophysics - Chemical Constituents *51522
Pharmacognosy and Pharmaceutical Botany *54000

BC Liliaceae *25345

IT Major Concepts
Biochemistry and Molecular Biophysics; Enzymology (Biochemistry and Molecular Biophysics); Pharmacognosy (Pharmacology); Pharmacology

IT Chemicals & Biochemicals
ANTI-**ELASTASE**; HYALURONIDASE; ESCINOL; ESCIN; HEDERAGENIN; OLEANOLIC ACID; HEDERACOSIDE C; ALPHA-HEDERIN; GLYCYRRHETIC ACID; RUSCOGENIN

IT Miscellaneous Descriptors
ALPHA-HEDERIN; CARDIOVASCULAR AGENT; ENZYME INHIBITOR; ESCIN; ESCINOL; GLYCYRRHETIC ACID; HEDERACOSIDE C; HEDERAGENIN; NATURAL PRODUCT; OLEANOLIC ACID; RUSCOGENIN; STRUCTURE-ACTIVITY RELATIONSHIP

ORGN Super Taxa
Araliaceae: Dicotyledones, Angiospermae, Spermatophyta, Plantae; Hippocastanaceae: Dicotyledones, Angiospermae, Spermatophyta, Plantae; Liliaceae: Monocotyledones, Angiospermae, Spermatophyta, Plantae

ORGN Organism Name
Aesculus hippocastanum (Hippocastanaceae); Hedera helix (Araliaceae); Ruscus aculeatus (Liliaceae)

ORGN Organism Superterms
angiosperms; dicots; monocots; plants; spermatophytes; vascular plants

RN 9012-20-8 (ANTI-**ELASTASE**)
9001-54-1Q (HYALURONIDASE)
37259-53-3Q (HYALURONIDASE)
37288-34-9Q (HYALURONIDASE)
37326-33-3Q (HYALURONIDASE)
127120-27-8 (ESCINOL)
6805-41-0 (ESCIN)
465-99-6 (HEDERAGENIN)
508-02-1 (OLEANOLIC ACID)
14216-03-6 (HEDERACOSIDE C)
27013-91-8 (ALPHA-HEDERIN)

471-53-4 (GLYCYRRHETIC ACID)
472-11-7 (RUSCOGENIN)

L64 ANSWER 11 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1995:90304 BIOSIS
DN PREV199598104604
TI Structure requirements for 5-LO inhibition by **boswellic** acids.
AU **Safayhi, H.**; Sailer, E.-R.; Rall, B.; **Ammon, H. P. T.**
CS Dep. Pharmacol., Inst. Pharm. Sci., Univ. Tuebingen, 72076 Tuebingen Germany
SO European Journal of Pharmaceutical Sciences, (1994) Vol. 2, No. 1-2, pp. 101.
Meeting Info.: Second European Congress of Pharmaceutical Sciences Berlin, Germany September 29-October 1, 1994
ISSN: 0928-0987.
DT **Conference**
LA English
CC **General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520**
Cytology and Cytochemistry - Animal 02506
Cytology and Cytochemistry - Human 02508
Biochemical Studies - General 10060
Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Enzymes - Chemical and Physical *10806
Blood, Blood-Forming Organs and Body Fluids - Lymphatic Tissue and Reticuloendothelial System *15008
Pharmacology - Drug Metabolism; Metabolic Stimulators *22003
Pharmacology - Immunological Processes and Allergy *22018
Plant Physiology, Biochemistry and Biophysics - Chemical Constituents *51522
Pharmacognosy and Pharmaceutical Botany *54000
BC Burseraceae 25695
Hominidae 86215
Muridae *86375
IT Major Concepts
Biochemistry and Molecular Biophysics; Blood and Lymphatics (Transport and Circulation); Enzymology (Biochemistry and Molecular Biophysics); Pharmacognosy (Pharmacology); Pharmacology
IT Chemicals & Biochemicals
5-LIPOXYGENASE
IT Miscellaneous Descriptors
MEETING ABSTRACT; NEUTROPHIL; 5-LIPOXYGENASE
ORGN Super Taxa
Burseraceae: Dicotyledones, Angiospermae, Spermatophyta, Plantae; Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia; Muridae: Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
human (Hominidae); rat (Muridae); Burseraceae (Burseraceae)
ORGN Organism Superterms
angiosperms; animals; chordates; dicots; humans; mammals; nonhuman mammals; nonhuman vertebrates; plants; primates; rodents; spermatophytes; vascular plants; vertebrates
RN 80619-02-9 (5-LIPOXYGENASE)

L64 ANSWER 12 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1995:49568 BIOSIS
DN PREV199598063868
TI Potent inhibitors of prostaglandine and/or leukotriene synthesis from turmeric acid and salai guggal.

AU **Ammon, H. P. T.; Safayhi, H.;** Mack, T.; Sabieraj, J.
CS Dep. Pharmacol., Inst. Pharm. Sci., Eberhard-Karls-Univ., D-W-7400 Tuebingen Germany
SO Mukherjee, B. [Editor]. (1993) pp. 110-124. Traditional medicine. Publisher: International Science Publisher Lebanon, New Hampshire, USA. Meeting Info.: International Seminar on Traditional Medicine: A Challenge of the Twenty-first Century Calcutta, India November 7-9, 1992 ISBN: 1-881570-32-0.
DT Book; **Conference**
LA English
CC **General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520**
Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Biochemical Studies - Lipids 10066
Enzymes - Physiological Studies *10808
Pathology, General and Miscellaneous - Inflammation and Inflammatory Disease *12508
Blood, Blood-Forming Organs and Body Fluids - Blood Cell Studies *15004
Blood, Blood-Forming Organs and Body Fluids - Lymphatic Tissue and Reticuloendothelial System *15008
Endocrine System - General *17002
Pharmacology - General *22002
Plant Physiology, Biochemistry and Biophysics - Chemical Constituents *51522
Pharmacognosy and Pharmaceutical Botany *54000
BC Zingiberaceae 25470
Burseraceae *25695
IT Major Concepts
Biochemistry and Molecular Biophysics; Blood and Lymphatics (Transport and Circulation); Endocrine System (Chemical Coordination and Homeostasis); Enzymology (Biochemistry and Molecular Biophysics); Pathology; Pharmacognosy (Pharmacology); Pharmacology
IT Chemicals & Biochemicals
TURMERIC; 5-LIPOXYGENASE; 12-LIPOXYGENASE
IT Miscellaneous Descriptors
ANTIINFLAMMATORIES; BOOK CHAPTER; HERBAL MEDICINE; **MEETING** PAPER; NEUTROPHILS; PROSTAGLANDIN; 12-LIPOXYGENASE; 5-LIPOXYGENASE
ORGN Super Taxa
Burseraceae: Dicotyledones, Angiospermae, Spermatophyta, Plantae; Muridae: Rodentia, Mammalia, Vertebrata, Chordata, Animalia; Zingiberaceae: Monocotyledones, Angiospermae, Spermatophyta, Plantae
ORGN Organism Name
rat (Muridae); **Boswellia** serrata (Burseraceae); Curcuma longa (Zingiberaceae)
ORGN Organism Superterms
angiosperms; animals; chordates; dicots; mammals; monocots; nonhuman mammals; nonhuman vertebrates; plants; rodents; spermatophytes; vascular plants; vertebrates
RN 458-37-7 (TURMERIC)
80619-02-9 (5-LIPOXYGENASE)
82391-43-3 (12-LIPOXYGENASE)

L64 ANSWER 13 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1993:378385 BIOSIS
DN PREV199345049810
TI Mechanism of antiinflammatory actions of curcumine and **boswellic** acids.
AU **Ammon, H. P. T. (1); Safayhi, H.;** Mack, T.; Sabieraj, J.

CS (1) Dep. Pharmacol., Inst. Pharmaceutical Sci., Eberhard-Karls Univ., D-W-7400 Tuebingen Germany
SO Journal of Ethnopharmacology, (1993) Vol. 38, No. 2-3, pp. 113-119.
Meeting Info.: Second International Congress on Ethnopharmacology Uppsala, Sweden July 2-4, 1992
ISSN: 0378-8741.
DT Article
LA English
CC **General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520**
Cytology and Cytochemistry - Human *02508
Biochemical Studies - General 10060
Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Biochemical Studies - Lipids 10066
Enzymes - Physiological Studies *10808
Pathology, General and Miscellaneous - Inflammation and Inflammatory Disease *12508
Metabolism - Lipids *13006
Blood, Blood-Forming Organs and Body Fluids - Blood Cell Studies *15004
Blood, Blood-Forming Organs and Body Fluids - Lymphatic Tissue and Reticuloendothelial System *15008
Endocrine System - General *17002
Pharmacology - Immunological Processes and Allergy *22018
Plant Physiology, Biochemistry and Biophysics - Chemical Constituents *51522
Pharmacognosy and Pharmaceutical Botany *54000
BC Zingiberaceae 25470
Burseraceae 25695
Muridae *86375
IT Major Concepts
Biochemistry and Molecular Biophysics; Blood and Lymphatics (Transport and Circulation); Cell Biology; Endocrine System (Chemical Coordination and Homeostasis); Enzymology (Biochemistry and Molecular Biophysics); Metabolism; Pathology; Pharmacognosy (Pharmacology); Pharmacology
IT Chemicals & Biochemicals
5-LIPOXYGENASE; CYCLOOXYGENASE
IT Miscellaneous Descriptors
ANTIINFLAMMATORY-DRUG; ANTIOXIDANT ACTIVITY; CYCLOOXYGENASE; LEUKOTRIENE SYNTHESIS; NEUTROPHIL; PHARMACODYNAMICS; PLATELET; 5=LIPOXYGENASE
ORGN Super Taxa
Burseraceae: Dicotyledones, Angiospermae, Spermatophyta, Plantae; Muridae: Rodentia, Mammalia, Vertebrata, Chordata, Animalia; Zingiberaceae: Monocotyledones, Angiospermae, Spermatophyta, Plantae
ORGN Organism Name
rat (Muridae); **Boswellia** serrata (Burseraceae); Curcuma longa (Zingiberaceae)
ORGN Organism Superterms
angiosperms; animals; chordates; dicots; mammals; monocots; nonhuman mammals; nonhuman vertebrates; plants; rodents; spermatophytes; vascular plants; vertebrates
RN 80619-02-9 (5-LIPOXYGENASE)
39391-18-9 (CYCLOOXYGENASE)

L64 ANSWER 14 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1991:404826 BIOSIS
DN BA92:71791
TI INHIBITION OF HUMAN LEUKOCYTE **ELASTASE** BY URSOLIC ACID EVIDENCE FOR A BINDING SITE FOR PENTACYCLIC TRITERPENES.

AU YING Q-L; RINEHART A R; SIMON S R; CHERONIS J C
CS DEP. PATHOL., STATE UNIV. NEW YORK AT STONY BROOK, STONY BROOK, N.Y. 11794.
SO BIOCHEM J, (1991) 277 (2), 521-526.
CODEN: BIJOAK. ISSN: 0306-3275.
FS BA; OLD
LA English
AB Several pentacyclic triterpenoid metabolites of plant origin are inhibitors of hydrolysis of both synthetic peptide substrates and elastin by human leukocyte **elastase** (HLE). Ursolic acid, the most potent of these compounds, has an inhibition constant of 4-6 .mu.M for hydrolysis of peptide substrates in phosphate-buffered saline. With tripeptide and tetrapeptide substrates, the inhibition is purely competitive, whereas with a shorter dipeptide substrate the inhibition is non-competitive, suggesting that ursolic acid interacts with subsite S3 of the extended substrate-binding domain in HLE, but not with subsites S1 and S2. The carboxy group at position 28 in the pentacyclic-ring system of the triterpenes contributes to binding to HLE, since replacement of this group with a hydroxy group, as in uvaol, the alcohol analogue of ursolic acid, reduces the potency of inhibition. The inhibitory potency of ursolic acid is also reduced by addition of 1 M-NaCl, further supporting a postulated electrostatic interaction between the negative charge on the triterpene and a positively charged residue on the enzyme, which we assign to the side chain of Arg-217, located in the vicinity of subsites S4 and S5 in HLE. These observations are consistent with a binding site for ursolic acid which extends from S3 towards S4 and S5 on the enzyme. Other triterpenes, including oleanolic acid, erythrodiol, hederagenin and 18.beta.-glycyrrhetic acid, can also interact with this binding site. On the basis of these results we conclude that the extended substrate-binding domain of HLE can accommodate a variety of hydrophobic ligands, including not only such molecules as fatty acids [Ashe & Zimmerman (1977) Biochem. Biophys. Res. Commun. 75, 194-199; Cook & Ternai (1988) Biol. Chem. Hoppe-Seyler 369, 629-637], but also polycyclic molecules such as the pentacyclic triterpenoids.
CC Cytology and Cytochemistry - Human *02508
Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Biochemical Studies - Lipids *10066
Biophysics - Molecular Properties and Macromolecules *10506
Enzymes - Chemical and Physical *10806
Enzymes - Physiological Studies *10808
Blood, Blood-Forming Organs and Body Fluids - Blood Cell Studies 15004
Blood, Blood-Forming Organs and Body Fluids - Lymphatic Tissue and Reticuloendothelial System *15008
Plant Physiology, Biochemistry and Biophysics - Chemical Constituents *51522
BC Hominidae 86215
IT Miscellaneous Descriptors
EC 3.4.21.37 SUBSTRATE-BINDING DOMAIN HYDROPHOBIC LIGAND
RN **77-52-1** (URSOLIC ACID)
9004-06-2 (**ELASTASE**)

L64 ANSWER 15 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1991:353879 BIOSIS
DN BR41:38394
TI URSOLIC ACID AND ITS TRITERPENOID ANALOGS ARE NATURAL SLOWLY BINDING INHIBITORS OF **PLASMIN**.
AU YING Q-L; SIMON S R
CS DEP. PATHOL., STATE UNIV. N.Y., STONY BROOK, N.Y. 11794-8691, USA.
SO SYMPOSIUM ON PROTEOLYSIS IN REGULATION AND DISEASE HELD AT THE 20TH ANNUAL

MEETING OF THE KEYSTONE SYMPOSIA ON MOLECULAR AND CELLULAR BIOLOGY, KEYSTONE, COLORADO, USA, APRIL 8-14, 1991. J CELL BIOCHEM SUPPL. (1991) 0 (15 PART G), 127.
CODEN: JCBSD7.
DT Conference
FS BR; OLD
LA English
CC General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520
Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Biochemical Studies - Lipids *10066
Biochemical Studies - Carbohydrates 10068
Biophysics - Molecular Properties and Macromolecules *10506
Enzymes - Chemical and Physical *10806
Metabolism - Carbohydrates *13004
Blood, Blood-Forming Organs and Body Fluids - Blood and Lymph Studies *15002
Plant Physiology, Biochemistry and Biophysics - Chemical Constituents *51522
BC Angiospermae 25200
Hominidae 86215
IT Miscellaneous Descriptors
ABSTRACT HUMAN FRUIT AMIDOLYSIS
RN **77-52-1** (URSOLIC ACID)

L64 ANSWER 16 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1991:174270 BIOSIS
DN BR40:82730
TI INHIBITION OF LEUKOTRIENE GENERATION BY A GUM RESIN EXUDATE OF **BOSWELLIA**-SERRATA IN RAT PERITONEAL LEUKOCYTES.
AU MACK T; **AMMON H P T; SAFAYHI H**
CS PHARMAZEUTISCHES INST., LEHRSTUHL PHARMAKOL., UNIV. TUEBINGEN, D-7400 TUEBINGEN, W. GER.
SO MEETING ON BIOLOGY AND CHEMISTRY OF ACTIVE NATURAL SUBSTANCES HELD AT THE INTERNATIONAL JOINT SYMPOSIUM OF THE SOCIETY FOR MEDICINAL PLANT RESEARCH, AMERICAN SOCIETY OF PHARMACOGNOSY, ASSOCIATION FRANCAISE POUR L'ENSEIGNEMENT ET LA RECHERCHE EN PHARMACOGNOSIE (FRENCH ASSOCIATION FOR EDUCATION AND RESEARCH IN PHARMACOGNOSY), AND THE PHYTOCHEMICAL SOCIETY OF EUROPE, BONN, GERMANY, JULY 17-22, 1990. PLANTA MED. (1990) 56 (6), 662.
CODEN: PLMEAA. ISSN: 0032-0943.
DT **Conference**
FS BR; OLD
LA English
CC **General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520**
Cytology and Cytochemistry - Animal 02506
Biochemical Studies - General *10060
Chordate Body Regions - Abdomen 11314
Pathology, General and Miscellaneous - Inflammation and Inflammatory Disease *12508
Blood, Blood-Forming Organs and Body Fluids - Blood Cell Studies 15004
Coelomic Membranes; Mesenteries and Related Structures 18200
Pharmacology - General *22002
Plant Physiology, Biochemistry and Biophysics - Chemical Constituents *51522
Pharmacognosy and Pharmaceutical Botany *54000
BC Burseraceae 25695
Muridae 86375
IT Miscellaneous Descriptors

MEDICINAL PLANT ANTIINFLAMMATORY-DRUG

L64 ANSWER 17 OF 17 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1990:367153 BIOSIS
DN BR39:51629
TI INHIBITION OF SERINE PROTEASES BY TRITERPENES.
AU YING Q L; SIMON S R; CHERONIS J C
CS SUNY STONY BROOK, N.Y. 11794.
SO JOINT MEETING OF THE AMERICAN SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY, AND THE AMERICAN ASSOCIATION OF IMMUNOLOGISTS, NEW ORLEANS, LOUISIANA, USA, JUNE 4-7, 1990. FASEB (FED AM SOC EXP BIOL) J. (1990) 4 (7), A2282.
CODEN: FAJOEC. ISSN: 0892-6638.
DT Conference
FS BR; OLD
LA English
CC General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520
Cytology and Cytochemistry - Animal 02506
Biochemical Studies - General 10060
Biochemical Studies - Lipids 10066
Enzymes - Physiological Studies *10808
Blood, Blood-Forming Organs and Body Fluids - Blood Cell Studies *15004
Blood, Blood-Forming Organs and Body Fluids - Lymphatic Tissue and Reticuloendothelial System *15008
Pharmacology - Drug Metabolism; Metabolic Stimulators *22003
IT Miscellaneous Descriptors
ABSTRACT NEUTROPHIL **ELASTASE** URSOLIC ACID OLEANIC ACID HEDERAGENIN ALPHA AMYRIN BETA AMYRIN AMIDOLYTIC ACID 18-BETA GLYCYRRHETINIC ACID METABOLIC-DRUG
RN **77-52-1** (URSOLIC ACID)
465-99-6 (HEDERAGENIN)
471-53-4 (GLYCYRRHETINIC ACID)
559-70-6 (BETA AMYRIN)
638-95-9 (ALPHA AMYRIN)
9004-06-2 (**ELASTASE**)
37259-58-8D (SERINE PROTEASES)

=> fil embase
FILE 'EMBASE' ENTERED AT 15:38:54 ON 10 FEB 1999

FILE COVERS 1974 TO 4 Feb 1999 (19990204/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d his 165-

(FILE 'BIOSIS' ENTERED AT 15:34:00 ON 10 FEB 1999)

FILE 'EMBASE' ENTERED AT 15:34:23 ON 10 FEB 1999
L65 471 S L19
L66 77 S BOSWEL?
L67 518 S L65,L66
L68 36 S SALAI OR OLIBANUM OR FRANKINCENS? OR BURSERACEAE
L69 542 S L67,L68
L70 0 S L69 AND (LUNG EMPHYSEMA OR RESPIRATORY DISTRESS OR SHOCK LUNG
L71 5 S L69 AND (CHRONIC BRONCHITIS OR GLOMERULONEPHRITIS+NT OR RHEUM

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L72          86 S L69 AND (C6.610. OR METASTASIS INHIBITION+NT OR ANTINEOPLASTI
L73           0 S L69 AND (PLASMIN OR ANTIPLASMIN)/CT
L74           2 S L69 AND (LEUKOCYTE ELASTASE)/CT
L75           7 S L71,L74
L76          10 S L72 AND L66
L77           6 S L72 AND L68
L78           5 S L72 AND L5
L79          22 S L75-L78

     FILE 'EMBASE' ENTERED AT 15:38:54 ON 10 FEB 1999

=> d all tot 179

L79  ANSWER 1 OF 22  EMBASE  COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN   1998370161  EMBASE
TI   [COX 2 inhibitor as drug of many talents?].
     COX-2-HEMMER ALS ALLESKONNER?.
AU   Wagner U.
SO   Pharmazeutische Zeitung, (29 Oct 1998) 143/44 (39-40).
     ISSN: 0031-7136  CODEN: PZSED5
CY   Germany
DT   Journal; Note
FS   002     Physiology
     005     General Pathology and Pathological Anatomy
     008     Neurology and Neurosurgery
     015     Chest Diseases, Thoracic Surgery and Tuberculosis
     016     Cancer
     026     Immunology, Serology and Transplantation
     030     Pharmacology
     037     Drug Literature Index
     048     GastroenterologyPharmacology
LA   German
SL   German
CT   Medical Descriptors:
     *enzyme inhibition
     *prostaglandin synthesis
     *antiinflammatory activity
     alzheimer disease: DT, drug therapy
     colon carcinoma: DT, drug therapy
     angiogenesis
     ulcerative colitis: DT, drug therapy
     asthma: DT, drug therapy
     human
     nonhuman
     note
     Drug Descriptors:
     *cyclooxygenase 2 inhibitor: CM, drug comparison
     *cyclooxygenase 2 inhibitor: DT, drug therapy
     *cyclooxygenase 2 inhibitor: PD, pharmacology
     *cyclooxygenase 2: EC, endogenous compound
     *celecoxib: CM, drug comparison
     *celecoxib: DT, drug therapy
     *celecoxib: PD, pharmacology
     *boswellic acid: AN, drug analysis
     *boswellic acid: DV, drug development
     *boswellic acid: DT, drug therapy
     *boswellic acid: PD, pharmacology
     unclassified drug
RN   (boswellic acid) 631-69-6
```

CO Searle monsanto (United States)

L79 ANSWER 2 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 1998358459 EMBASE
TI **Boswellic** acid acetate induces differentiation and apoptosis in leukemia cell lines.
AU Jing Y.; Nakajo S.; Xia L.; Nakaya K.; Fang Q.; Waxman S.; Han R.
CS Y. Jing, Mount Sinai Medical Center, 1 Gustave L. Levy Place, New York, NY 10029, United States. jing@msvax.mssm.edu.
SO Leukemia Research, (1999) 23/1 (43-50).
Refs: 36
ISSN: 0145-2126 CODEN: LEREDD
PUI S 0145-2126(98)00096-4
CY United Kingdom
DT Journal; Article
FS 016 Cancer
025 Hematology
LA English
SL English
AB **Boswellic** acid acetate (BC-4), a compound isolated from the herb **Boswellia** carterii Birdw., can induce differentiation and apoptosis of leukemia cells. Based on cell morphology and NBT reduction, BC-4 induced monocytic differentiation of myeloid leukemia HL-60, U937 and ML-1 cells at a dose under 12.5 .mu.g/ml (24.2 .mu.M). BC-4 was a potent inducer, with 90% of the cells showing morphologic changes and 80-90% of the cells showing NBT reduction. Specific and non-specific esterase were also increased by BC-4. Based on benzidine staining assay, BC-4 failed to induce erythroid leukemia DS-19 and K562 cells differentiation. In contrast to its selective differentiation effect, BC-4 strongly inhibited growth of all cell lines tested. The growth inhibition effect was dose- and time-dependent. In HL-60 cells, 20 .mu.g/ml (38.8 .mu.M) of BC-4 decreased viable cell number by 60% at 24 h, whereas at 3 days there was virtually no viable cells. Morphologic and DNA fragmentation analysis proved that BC-4 induced cell apoptosis. The dual apoptotic and differentiation effects of BC-4 suggest that it may be a powerful agent in the treatment of leukemia. Copyright (C) 1999 Elsevier Science Ltd.
CT Medical Descriptors:
*apoptosis
cell differentiation
leukemia cell line
growth inhibition
cell strain hl 60
cell count
human
human cell
article
priority journal
Drug Descriptors:
***boswellic acid**
acetic acid
nonspecific esterase: EC, endogenous compound
DNA fragment: EC, endogenous compound
cell DNA: EC, endogenous compound
RN (**boswellic** acid) **631-69-6**; (acetic acid) 127-08-2, 127-09-3, 64-19-7, 71-50-1

L79 ANSWER 3 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 1998170995 EMBASE
TI Inhibitory activity of **boswellic** acids from **Boswellia**

serrata against human leukemia HL-60 cells in culture.
AU Shao Y.; Ho C.-T.; Chin C.-K.; Badmaev V.; Ma W.; Huang M.-T.
CS Prof. C.-T. Ho, Department of Food Science, Cook College, State University of New Jersey, New Brunswick, NJ 08903, United States. ho@aesop.rutgers.edu
SO Planta Medica, (1998) 64/4 (328-331).
Refs: 26
ISSN: 0032-0943 CODEN: PLMEAA
CY Germany
DT Journal; Article
FS 029 Clinical Biochemistry
030 Pharmacology
037 Drug Literature Index
LA English
SL English
AB Four major triterpene acids including .beta.-**boswellic** acid (1), 3-O-acetyl- .beta.-**boswellic** acid (2), 11-keto-.beta.-**boswellic** acid (3), and 3-O-acetyl-11-keto- .beta.-**boswellic** acid (4) were isolated from the gum resin of **Boswellia** serrata and examined for their in vitro antitumor activity. They inhibited the synthesis of DNA, RNA and protein in human leukemia HL-60 cells in a dose dependent manner with IC50 values ranging from 0.6 to 7.1 .mu.M. Among them, compound 4 induced the most pronounced inhibitory effects on DNA, RNA and protein synthesis with IC50 values of 0.6, 0.5, and 4.1 .mu.M, respectively. The effect of 4 on DNA synthesis was found to be irreversible. Compound 4 significantly inhibited the cellular growth of HL-60 cells, but did not affect cell viability.
CT Medical Descriptors:
antineoplastic activity
leukemia
cell strain hl 60
cell growth
protein synthesis
dna synthesis
cell viability
human
human cell
article
Drug Descriptors:
triterpene

L79 ANSWER 4 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 1998119303 EMBASE
TI [Is H15 (Extract of **Boswellia** serrata, 'incense') an efficient supplementation to established drug therapy in RA? - Results of a double blinded pilot trial].
IST H15 (HARZEXTRAKT VON **BOSWELLIA** SERRATA, 'WEIHRAUCH') EINE SINNVOLLE ERGANZUNG ZUR ETABLIERTEN MEDIKAMENTOSEN THERAPIE DER CHRONISCHEN POLYARTHRITIS? - ERGEBNISSE EINER DOPPELBLINDEN PILOTSTUDIE.
AU Sander O.; Herborn G.; Rau R.
CS Dr. O. Sander, Evangelisches Fachkran. Ratingen, Rheumatologische Klinik, Rosenstrasse 2, D-40882 Ratingen, Germany
SO Zeitschrift fur Rheumatologie, (1998) 57/1 (11-16).
Refs: 19
ISSN: 0340-1855 CODEN: ZRHMBQ
CY Germany
DT Journal; Article
FS 031 Arthritis and Rheumatism
037 Drug Literature Index

LA German
SL English; German
AB Background: Leukotrienes and prostaglandines are important mediators of inflammation. While prostaglandine synthesis can be influenced by NSAIDs therapeutical approaches to the 5-lipoxygenase pathway are rare. Resinous extracts of **Boswellia** serrata (H15, indish incense), known from traditional ayurvedic medicine, decrease leukotriene synthesis in vitro. Case reports suggest a clinical role for that drug. Methods: Outpatients with active RA have been enrolled into a multicenter controlled trial. Patients received 9 tablets of active drug (3600 mg) or placebo daily in addition to their previous therapy. Doses of NSAIDs could be adjusted on demand. Efficacy parameters, Ritchies Index for swelling and pain, ESR, CRP, pain on VAS and NSAID dose were documented at baseline and 6 and 12 weeks after initiation. Mean values and medians were calculated to compare the groups for significant or clinically relevant change from baseline or difference between both groups at any time point of observation. Results: A total of 78 patients were recruited in 4 centers, the data have been published in abstractform. Only 37 patients (verum 18, placebo 19), enrolled in Ratingen were available for detailled efficacy and safety analysis. All evaluations in these patients were performed by one investigator (G.H.). There was no subjective, clinical or laboratory parameter showing a significant or clinically relevant change from baseline or difference between both groups at any time point of observation. The mean NSAID dose reduction reached levels of 5.8% (H15) and 3.1% (placebo). One patient in each group showed a good response in all parameters but 4 patients in each group worsened. The others showed no alteration of their disease. Conclusion: Treatment with H15 showed no measurable efficacy. Controlled studies including a greater patient population are necessary to confirm or reject our results.
CT Medical Descriptors:
***rheumatoid arthritis: DT, drug therapy**
*supplementation
*traditional medicine
drug efficacy
tablet
erythrocyte sedimentation rate
drug safety
prostaglandin synthesis
human
major clinical study
clinical trial
randomized controlled trial
double blind procedure
multicenter study
controlled study
aged
adult
oral drug administration
article
Drug Descriptors:
***boswellic acid: CT, clinical trial**
***boswellic acid: DT, drug therapy**
*ayurvedic drug: CT, clinical trial
*ayurvedic drug: DT, drug therapy
*plant extract: CT, clinical trial
*plant extract: DT, drug therapy
nonsteroid antiinflammatory agent: DT, drug therapy
arachidonate 5 lipoxygenase: EC, endogenous compound
leukotriene: EC, endogenous compound

prostaglandin: EC, endogenous compound
placebo
c reactive protein
RN (**boswellic** acid) **631-69-6**; (arachidonate 5 lipoxygenase) 80619-02-9; (c reactive protein) 9007-41-4

L79 ANSWER 5 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 97298895 EMBASE
TI [Pharmacological aspects of incense (**Olibanum**) and **boswellic** acids].
PHARMAKOLOGISCHE ASPEKTE VON WEIHRAUCH UND **BOSWELLIASAUREN**.
AU Safayhi H.; Ammon H.P.T.
CS Dr. H. Safayhi, Lehrstuhl Pharmakologie, Pharmazeutisches Institut, Universitat Tubingen, Auf der Morgenstelle 8, 72076 Tubingen, Germany, Federal Republic of
SO Pharmazeutische Zeitung, (1997) 142/39 (11-20).
Refs: 40
ISSN: 0031-7136 CODEN: PZSED5
CY Germany, Federal Republic of
DT Journal
FS 016 Cancer
026 Immunology, Serology and Transplantation
030 Pharmacology
031 Arthritis and Rheumatism
048 Gastroenterology
037 Drug Literature Index
LA German
SL German
CT EMTAGS: therapy (0160); **malignant neoplastic disease** (0306); mammal (0738); human (0888); nonhuman (0777); review (0001)
Medical Descriptors:
*drug mechanism
rheumatic disease: DT, drug therapy
cancer: DT, drug therapy
ulcerative colitis: DT, drug therapy
brain edema: DT, drug therapy
human
nonhuman
review
Drug Descriptors:
***boswellic acid: PD, pharmacology**
***boswellic acid: DT, drug therapy**
olibanum extract: PD, pharmacology
olibanum extract: DT, drug therapy
*plant extract: PD, pharmacology
*plant extract: DT, drug therapy
*lipoxygenase inhibitor: PD, pharmacology
*lipoxygenase inhibitor: DT, drug therapy
*proteinase inhibitor: PD, pharmacology
*proteinase inhibitor: DT, drug therapy
*dna topoisomerase inhibitor: PD, pharmacology
*dna topoisomerase inhibitor: DT, drug therapy
unclassified drug
RN (**boswellic** acid) **631-69-6**; (proteinase inhibitor) 37205-61-1

L79 ANSWER 6 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 97144655 EMBASE
TI Inhibition by **boswellic** acids of human leukocyte elastase.

AU Safayhi H.; Rall B.; Sailer E.-R.; Ammon H.P.T.
CS Dr. H. Safayhi, Institute of Pharmaceutical Sciences, University of Tuebingen, Auf der Morgenstelle 8, D-72076 Tuebingen, Germany, Federal Republic of
SO Journal of Pharmacology and Experimental Therapeutics, (1997) 281/1 (460-463).
Refs: 24
ISSN: 0022-3565 CODEN: JPETAB
CY United States
DT Journal
FS 030 Pharmacology
037 Drug Literature Index
LA English
SL English
AB **Frankincense** extracts and **boswellic** acids, biologically active pentacyclic triterpenes of **frankincense**, block leukotriene biosynthesis and exert potent anti-inflammatory effects. Screening for additional effects of **boswellic** acids on further proinflammatory pathways, we observed that acetyl- 11-keto-.beta.-**boswellic** acid, an established direct, nonredox and noncompetitive 5-lipoxygenase inhibitor, decreased the activity of human leukocyte elastase (HLE) in vitro with an IC50 value of about 15 .mu.M. Among the pentacyclic triterpenes tested in concentrations up to 20 .mu.M, we also observed substantial inhibition by .beta.-**boswellic** acid, amyrin and ursolic acid, but not by 18.beta.-glycyrrhetinic acid. The data show that the dual inhibition of 5- lipoxygenase and HLE is unique to **boswellic** acids: other pentacyclic triterpenes with HLE inhibitory activities (e.g., ursolic acid and amyrin) do not inhibit 5-lipoxygenase, and leukotriene biosynthesis inhibitors from different chemical classes (e.g., NDGA, MK-886 and ZM-230,467) do not impair HLE activity. Because leukotriene formation and HLE release are increased simultaneously by neutrophil stimulation in a variety of inflammation- and hypersensitivity-based human diseases, the reported blockade of two proinflammatory enzymes by **boswellic** acids might be the rationale for the putative antiphlogistic activity of acetyl-11-keto-.beta.-**boswellic** acid and derivatives.
CT EMTAGS: mammal (0738); human (0888); controlled study (0197); article (0060); priority journal (0007); enzyme (0990); therapy (0160)
Medical Descriptors:
*enzyme inhibition
drug structure
inhibition kinetics
antiinflammatory activity
concentration response
enzyme activity
human
controlled study
article
priority journal
Drug Descriptors:
***leukocyte elastase**
***boswellic acid: CM, drug comparison**
***boswellic acid: DV, drug development**
***boswellic acid: DO, drug dose**
***boswellic acid: PD, pharmacology**
*triterpene derivative: CM, drug comparison
*triterpene derivative: DV, drug development
*triterpene derivative: DO, drug dose
*triterpene derivative: PD, pharmacology

acetyl 11 oxo beta boswellic acid: CM, drug comparison
acetyl 11 oxo beta boswellic acid: DV, drug development
acetyl 11 oxo beta boswellic acid: DO, drug dose
acetyl 11 oxo beta boswellic acid: PD, pharmacology
arachidonate 5 lipoxygenase: EC, endogenous compound
lipoxygenase inhibitor: CM, drug comparison
lipoxygenase inhibitor: DV, drug development
lipoxygenase inhibitor: DO, drug dose
lipoxygenase inhibitor: PD, pharmacology
ursolic acid: CM, drug comparison
ursolic acid: DV, drug development
ursolic acid: DO, drug dose
ursolic acid: PD, pharmacology
glycyrrhetinic acid derivative: CM, drug comparison
glycyrrhetinic acid derivative: DV, drug development
glycyrrhetinic acid derivative: DO, drug dose
glycyrrhetinic acid derivative: PD, pharmacology
glycyrrhetinic acid: CM, drug comparison
glycyrrhetinic acid: DV, drug development
glycyrrhetinic acid: DO, drug dose
glycyrrhetinic acid: PD, pharmacology
nordihydroguaiaretic acid: CM, drug comparison
nordihydroguaiaretic acid: DO, drug dose
nordihydroguaiaretic acid: PD, pharmacology
3 [3 tert butylthio 1 (4 chlorobenzyl) 5 isopropyl 2 indolyl] 2,2 dimethylpropionic acid: CM, drug comparison
3 [3 tert butylthio 1 (4 chlorobenzyl) 5 isopropyl 2 indolyl] 2,2 dimethylpropionic acid: DO, drug dose
3 [3 tert butylthio 1 (4 chlorobenzyl) 5 isopropyl 2 indolyl] 2,2 dimethylpropionic acid: PD, pharmacology
1 ethyl 6 [[3 fluoro 5 (3,4,5,6 tetrahydro 4 methoxy 2h pyran 4 yl)]phenoxymethyl] 2 quinolone: CM, drug comparison
1 ethyl 6 [[3 fluoro 5 (3,4,5,6 tetrahydro 4 methoxy 2h pyran 4 yl)]phenoxymethyl] 2 quinolone: DO, drug dose
1 ethyl 6 [[3 fluoro 5 (3,4,5,6 tetrahydro 4 methoxy 2h pyran 4 yl)]phenoxymethyl] 2 quinolone: PD, pharmacology
hydrocortisone: CM, drug comparison
hydrocortisone: DO, drug dose
hydrocortisone: PD, pharmacology
testosterone: CM, drug comparison
testosterone: DO, drug dose
testosterone: PD, pharmacology
chymotrypsin
6 [[3 fluoro 5 (3,4,5,6 tetrahydro 4 methoxy 2h pyran 4 yl)]phenoxymethyl] 1 methyl 2 quinolone
unclassified drug

RN (leukocyte elastase) 109968-22-1; (**boswellic** acid) **631-69-6**; (arachidonate 5 lipoxygenase) 80619-02-9; (ursolic acid) **77-52-1**; (glycyrrhetinic acid) **471-53-4**; (nordihydroguaiaretic acid) 500-38-9; (3 [3 tert butylthio 1 (4 chlorobenzyl) 5 isopropyl 2 indolyl] 2,2 dimethylpropionic acid) 118414-82-7; (1 ethyl 6 [[3 fluoro 5 (3,4,5,6 tetrahydro 4 methoxy 2h pyran 4 yl)]phenoxymethyl] 2 quinolone) 155944-23-3; (hydrocortisone) 50-23-7; (testosterone) 58-22-0; (chymotrypsin) 9004-07-3, 9014-64-6; (6 [[3 fluoro 5 (3,4,5,6 tetrahydro 4 methoxy 2h pyran 4 yl)]phenoxymethyl] 1 methyl 2 quinolone) 140841-32-3

CN (1) Mk 886; (2) Zm 230487; Ici 230487; Ici d2138; L 663536

CO (1) Merck frosst (Canada); (2) Ici (United Kingdom); Sigma (Germany, Federal Republic of); Calbiochem (Germany, Federal Republic of);

Boehringer mannheim (Germany, Federal Republic of)

L79 ANSWER 7 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 96374165 EMBASE
TI [Plant research: Opportunity for new therapies].
PLFANZENFORSCHUNG: CHANCE FUR NEUE THERAPIEN.
AU Czajka S.
SO Pharmazeutische Zeitung, (1996) 141/49 (43-47).
ISSN: 0031-7136 CODEN: PZSED5
CY Germany, Federal Republic of
DT Journal
FS 030 Pharmacology
037 Drug Literature Index
LA German
SL German
CT EMTAGS: **malignant neoplastic disease** (0306); chemical procedures (0107); methodology (0130); mammal (0738); human (0888); nonhuman (0777); short survey (0002); higher plant (0697); plant (0699)
Medical Descriptors:
*phytochemistry
angiogenesis
research
cancer
drug screening
drug synthesis
quality control
plant growth
human
nonhuman
short survey
Drug Descriptors:
*plant extract
*herbaceous agent
vinca alkaloid
taxol
camptothecin
boswellic acid
viscum album
hypericum perforatum extract
RN (taxol) 33069-62-4; (camptothecin) 7689-03-4; (**boswellic** acid) **631-69-6**; (viscum album) 8031-76-3

L79 ANSWER 8 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 96111463 EMBASE
TI Alcoholic extract of **salai**-guggal ex-**Boswellia** serrata, a new natural source NSAID.
AU Singh G.B.; Singh S.; Bani S.
CS Regional Research Laboratory, Canal Road, Jammu Tawi 180001, India
SO Drugs of Today, (1996) 32/2 (109-112).
ISSN: 0025-7656 CODEN: MDACAP
CY Spain
DT Journal
FS 030 Pharmacology
031 Arthritis and Rheumatism
037 Drug Literature Index
LA English
CT EMTAGS: therapy (0160); mammal (0738); human (0888); nonhuman (0777); oral drug administration (0181); review (0001)
Medical Descriptors:

*immune response
***rheumatoid arthritis: DT, drug therapy**
*osteoarthritis: DT, drug therapy
drug safety
human
nonhuman
oral drug administration
review
*antiinflammatory activity
Drug Descriptors:
*nonsteroid antiinflammatory agent: TO, drug toxicity
*nonsteroid antiinflammatory agent: PD, pharmacology
*nonsteroid antiinflammatory agent: DT, drug therapy
*nonsteroid antiinflammatory agent: DO, drug dose
*nonsteroid antiinflammatory agent: DV, drug development
*plant extract: TO, drug toxicity
*plant extract: PD, pharmacology
*plant extract: DT, drug therapy
*plant extract: DO, drug dose
*plant extract: DV, drug development
boswellia serrata extract: TO, drug toxicity
boswellia serrata extract: PD, pharmacology
boswellia serrata extract: DT, drug therapy
boswellia serrata extract: DO, drug dose
boswellia serrata extract: DV, drug development
beta boswellic acid: AN, drug analysis
beta boswellic acid: DV, drug development
unclassified drug

L79 ANSWER 9 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 95295990 EMBASE
TI [**Boswellia** acid].
BOSWELLIAZUUR.
AU Woerdenbag H.J.
SO Pharmaceutisch Weekblad, (1995) 130/40 (1054).
ISSN: 0031-6911 CODEN: PHWEAW
CY Netherlands
DT Journal
FS 031 Arthritis and Rheumatism
037 Drug Literature Index
LA Dutch
CT EMTAGS: mammal (0738); human (0888); nonhuman (0777); mouse (0727); rat (0733); animal experiment (0112); oral drug administration (0181); intraperitoneal drug administration (0178); note (0063); higher plant (0697); plant (0699)
Medical Descriptors:
***rheumatoid arthritis**
biosynthesis
phytochemistry
structure activity relation
human
nonhuman
mouse
rat
animal experiment
oral drug administration
intraperitoneal drug administration
note
Drug Descriptors:

*medicinal plant
*triterpene
***boswellic acid**
RN **631-69-6**

L79 ANSWER 10 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 95178376 EMBASE
TI **Boswellic** acids.
SO Drugs of the Future, (1995) 20/4 (408).
ISSN: 0377-8282 CODEN: DRFUD4
CY Spain
DT Journal
FS 030 Pharmacology
031 Arthritis and Rheumatism
037 Drug Literature Index
LA English
CT EMTAGS: therapy (0160); mammal (0738); human (0888); oral drug administration (0181); short survey (0002)
Medical Descriptors:
***rheumatoid arthritis: DT, drug therapy**
human
oral drug administration
short survey
Drug Descriptors:
*antiinflammatory agent: DT, drug therapy
***boswellic acid: DT, drug therapy**
*antirheumatic agent: DT, drug therapy
RN **631-69-6**
CO Jammu tawi

L79 ANSWER 11 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 95035097 EMBASE
TI Cytotoxic constituents of Bursera permollis.
AU Wickramaratne D.B.M.; Mar W.; Chai H.; Castillo J.J.; Farnsworth N.R.; Soejarto D.D.; Cordell G.A.; Pezzuto J.M.; Kinghorn A.D.
CS Program for Collaborative Research, Dept. of Med. Chem./Pharmacognosy, College of Pharmacy, Chicago, IL 60612, United States
SO Planta Medica, (1995) 61/1 (80-81).
ISSN: 0032-0943 CODEN: PLMEAA
CY Germany, Federal Republic of
DT Journal
FS 016 Cancer
030 Pharmacology
037 Drug Literature Index
LA English
SL English
AB Four cytotoxic lignans were isolated from the stem bark of Bursera permollis (**Burseraceae**), namely, deoxypodophyllotoxin (1), .beta.-peltatin methyl ether (2), picro-.beta.-peltatin methyl ether (3), and dehydro-.beta.-peltatin methyl ether (4). Also isolated was the inactive lignan, nemerosin (5). Compounds 1 and 2 were potently cytotoxic when evaluated against a panel of human cancer cell lines.
CT EMTAGS: plant (0699); mammal (0738); human (0888); controlled study (0197); human tissue, cells or cell components (0111); article (0060)
Medical Descriptors:
*cytotoxicity
tumor cell
phytochemistry
plant

drug isolation
drug identification
human
controlled study
human cell
article
Drug Descriptors:
*lignan
*deoxypodophyllotoxin
nemerosin
beta peltatin methyl ether
picro beta peltatin methyl ether
dehydro beta peltatin methyl ether
unclassified drug
RN 19186-35-7

L79 ANSWER 12 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 94229574 EMBASE
TI Recent progress in the study of anticancer drugs originating from plants and traditional medicines in China.
AU Han R.
CS Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China
SO CHIN. MED. SCI. J., (1994) 9/1 (61-69).
ISSN: 1001-9294 CODEN: CMSJEP
CY China
DT Journal
FS 016 Cancer
030 Pharmacology
037 Drug Literature Index
LA English
SL English
AB Drugs of plant origin have received much attention due to their enormous potential for the prevention and treatment of cancer. Recent progress in the study of anticancer drugs originating from plants and traditional medicines in China is reviewed in this paper, with particular emphasis on taxol, daidzein, acetyl **boswellic** acid, curcumin and ginsenosid Rh2.
CT EMTAGS: **malignant neoplastic disease** (0306); mammal (0738); human (0888); nonhuman (0777); review (0001); higher plant (0697); plant (0699)
Medical Descriptors:
***cancer**
drug information
traditional medicine
antineoplastic activity
phytochemistry
drug isolation
drug structure
human
nonhuman
review
Drug Descriptors:
*antineoplastic agent: PD, pharmacology
*taxol: PD, pharmacology
*plant extract: PD, pharmacology
*chinese herb: PD, pharmacology
curcumin: PD, pharmacology
daidzein: PD, pharmacology

camptothecin: PD, pharmacology
ginseng: PD, pharmacology
harringtonine: PD, pharmacology
irisquinone: PD, pharmacology
oridonin: PD, pharmacology
acetylboswellic acid: PD, pharmacology
boswellic acid derivative
homoharringtonine: PD, pharmacology
unclassified drug
RN 33069-62-4; 458-37-7; 486-66-8; 7689-03-4; 26833-85-2; 28957-04-2; 26833-87-4

L79 ANSWER 13 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 94045965 EMBASE
TI Highlight on the studies of anticancer drugs derived from plants in China.
AU Han R.
CS Institute of Materia Medica, Chinese Academy of Medical Sciences, 1 Xian Nong Tan Street, Beijing 100050, China
SO STEM CELLS, (1994) 12/1 (53-63).
ISSN: 1066-5099 CODEN: STCEEJ
CY United States
DT Journal
FS 016 Cancer
030 Pharmacology
037 Drug Literature Index
038 Adverse Reactions Titles
LA English
SL English
AB Recent progress on the study of anticancer drugs originating from plants in China is reviewed in this paper. Guided by the experience of traditional Chinese medicine, several new drugs have been found. Indirubin from Indigofera tinctoria is useful for the treatment of chronic myelocytic leukemia. Irisquinone from Iris latea pallasii and 10-hydroxy camptothecin from Camptotheca accuminata have exhibited definite activity on rodent tumors. Recent studies indicate that ginsenoside Rh2 is an inducer of cell differentiation in melanoma B-16 cells in vitro. Pharmacological studies have demonstrated that curcumin from Curcuma longa is an antimutagen as well as an antipromotor for cancer. Daidzein and acetyl **boswellic** acid have been shown to be effective inducers of cell differentiation in HL-60 cells. Guided by the chemotaxonomic principle of plants, harringtonine and homoharringtonine isolated from Cephalotaxus hainanensis have exhibited significant antileukemia activity and are widely used in clinics in China. Taxol from Taxus chinensis has been shown to be an important new anticancer drug with unique chemical structure and mechanism of action. The continuous search for new anticancer drugs from plants will be a fruitful frontier in cancer treatment and chemoprevention.
CT EMTAGS: **malignant neoplastic disease** (0306); therapy (0160); higher plant (0697); plant (0699); pharmacokinetics (0194); mammal (0738); human (0888); nonhuman (0777); human experiment (0104); conference paper (0061); adverse drug reaction (0198); iatrogenic disease (0300)
Medical Descriptors:
***chronic myeloid leukemia: DT, drug therapy**
***melanoma**
***bladder cancer: DT, drug therapy**
***acute granulocytic leukemia**
medicinal plant
cell strain hl 60
antineoplastic activity

drug efficacy
gastrointestinal toxicity: SI, side effect
blood toxicity: SI, side effect
drug structure
uterine cervix carcinoma
lymphosarcoma
liver cell carcinoma
drug distribution
lung cancer: DT, drug therapy
human
nonhuman
clinical trial
phase 1 clinical trial
phase 2 clinical trial
conference paper
Drug Descriptors:
*indirubin: AE, adverse drug reaction
*indirubin: CT, clinical trial
*indirubin: DT, drug therapy
*indirubin: PD, pharmacology
*camptothecin derivative: DV, drug development
*camptothecin derivative: DT, drug therapy
*camptothecin derivative: PK, pharmacokinetics
*camptothecin derivative: PD, pharmacology
*ginsenoside: PD, pharmacology
*harringtonine: PD, pharmacology
*homoharringtonine: PD, pharmacology
*taxol: PD, pharmacology
antineoplastic agent: AE, adverse drug reaction
antineoplastic agent: CT, clinical trial
antineoplastic agent: DT, drug therapy
antineoplastic agent: PD, pharmacology
herbal medicine: AE, adverse drug reaction
herbal medicine: CT, clinical trial
herbal medicine: DT, drug therapy
herbal medicine: PD, pharmacology
curcumin: PD, pharmacology
daidzein: PD, pharmacology
boswellic acid: PD, pharmacology
topotecan: DV, drug development
topotecan: DT, drug therapy
RN 479-41-4; 74749-74-9; 26833-85-2; 26833-87-4; 33069-62-4; 458-37-7; 486-66-8; **631-69-6**; 119413-54-6; 123948-87-8
CN Skf 104864

L79 ANSWER 14 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 92274384 EMBASE
TI [The Indian incense - New aspects of an old resin].
DER INDISCHE WEIHRAUCH - NEUE ASPEKTE EINES ALTEN HARZES.
AU Martinetz D.
CS Weissdornstrasse 98, 7062 Leipzig, Germany, Federal Republic of
SO Z. PHYTOTHER., (1992) 13/4 (121-125).
ISSN: 0722-348X CODEN: ZPHYDG
CY Germany, Federal Republic of
DT Journal
FS 029 Clinical Biochemistry
030 Pharmacology
031 Arthritis and Rheumatism
037 Drug Literature Index

LA German
SL German; English
CT EMTAGS: mammal (0738); human (0888); nonhuman (0777); review (0001); apparatus, equipment and supplies (0510)
Medical Descriptors:
*analgesia
*sedation
***rheumatoid arthritis**
phytochemistry
antiinflammatory activity
analgesic activity
traditional medicine
human
nonhuman
review
Drug Descriptors:
*resin: PD, pharmacology
*resin: AN, drug analysis
*resin: DV, drug development
analgesic agent: PD, pharmacology
analgesic agent: AN, drug analysis
analgesic agent: DV, drug development
sedative agent: PD, pharmacology
sedative agent: AN, drug analysis
sedative agent: DV, drug development
antirheumatic agent: PD, pharmacology
antirheumatic agent: AN, drug analysis
antirheumatic agent: DV, drug development
antiinflammatory agent: PD, pharmacology
antiinflammatory agent: AN, drug analysis
antiinflammatory agent: DV, drug development
*plant extract: PD, pharmacology
*plant extract: AN, drug analysis
*plant extract: DV, drug development
incense: PD, pharmacology
incense: AN, drug analysis
incense: DV, drug development
olibanum: PD, pharmacology
olibanum: AN, drug analysis
olibanum: DV, drug development
boswellic acid derivative: PD, pharmacology
boswellic acid derivative: AN, drug analysis
boswellic acid derivative: DV, drug development
boswellia serrata extract: PD, pharmacology
boswellia serrata extract: AN, drug analysis
boswellia serrata extract: DV, drug development
unclassified drug

L79 ANSWER 15 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 91226984 EMBASE
TI Inhibition of human leucocyte elastase by ursolic acid. Evidence for a binding site for pentacyclic triterpenes.
AU Ying Q.-L.; Rinehart A.R.; Simon S.R.; Cheronis J.C.
CS Department of Pathology, State University of New York at Stony Brook, Stony Brook, NY 11794, United States
SO BIOCHEM. J., (1991) 277/2 (521-526).
ISSN: 0264-6021 CODEN: BIJOAK
CY United Kingdom
DT Journal

FS 029 Clinical Biochemistry
LA English
AB Several pentacyclic triterpenoid metabolites of plant origin are inhibitors of hydrolysis of both synthetic peptide substrates and elastin by human leucocyte elastase (HLE). Ursolic acid, the most potent of these compounds, has an inhibition constant of 4-6 .mu.M for hydrolysis of peptide substrates in phosphate-buffered saline. With tripeptide and tetrapeptide substrates, the inhibition is purely competitive, whereas with a shorter dipeptide substrate the inhibition is noncompetitive, suggesting that ursolic acid interacts with subsite S3 of the extended substrate-binding domain in HLE, but not with subsites S1 and S2. The carboxy group at position 28 in the pentacyclic-ring system of the triterpenes contributes to binding to HLE, since replacement of this group with a hydroxy group, as in uvaol, the alcohol analogue of ursolic acid, reduces the potency of inhibition. The inhibitory potency of ursolic acid is also reduced by addition of 1 M -NaCl, further supporting a postulated electrostatic interaction between the negative charge on the triterpene and a positively charged residue on the enzyme, which we assign to the side chain of Arg-217, located in the vicinity of subsites S4 and S6 in HLE. These observations are consistent with a binding site for ursolic acid which extends from S3 towards S4 and S5 on thc enzyme. Other triterpenes, including oleanolic acid, erythrodiol, hederagenin and 18.beta.-glycyrrhetic acid, can also interact with this binding site. On thc basis of these results we conclude that the extended substrate-binding domain of HLE can accommodate a variety of hydrophobic ligands, including not only such molecules as fatty acids [Ashe and Zimmerman (1977) Biochem. Biophys. Res. Comlllull. 75, 194-199, Cook and Ternai (1988) Biol. Chem. Hoppe-Seyler 369, 629-637], but also polycyclic molecules such as the pentacyclic triterpenoids.
CT EMTAGS: mammal (0738); human (0888); human tissue, cells or cell components (0111); priority journal (0007); article (0060); enzyme (0990)
Medical Descriptors:
*competitive inhibition
binding site
human
human cell
priority journal
article
Drug Descriptors:
***leukocyte elastase: EC, endogenous compound**
*ursolic acid
triterpene
RN **77-52-1**

L79 ANSWER 16 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 91179960 EMBASE
TI Cyclosporin A suppresses cisplatin-induced oncogène expression in human cancer cells.
AU Scanlon K.J.; Wang W.; Han H.
CS Department of Medical Oncology, Montana Building, City of Hope National Medical Center, Duarte, CA 91010, United States
SO CANCER TREAT. REV., (1990) 17/SUPPL. A (27-35).
ISSN: 0305-7372 CODEN: CTREDJ
CY United Kingdom
DT Journal
FS 006 Internal Medicine
016 Cancer
022 Human Genetics
029 Clinical Biochemistry

030 Pharmacology
037 Drug Literature Index
LA English
AB Most cancer chemotheraputic agents are designed to damage DNA directly or indirectly. One mechanism of cellular resitance to these agents is enhanced DNA repair. Human ovarian carcinoma cells resistant to cisplatin (A2780DDP) respond to cisplatin treatment with a 3-6 fold increase in gene expression for oncogenes, DNA repair enzymes and enzymes necessary for the synthesis of thymidine. Cyclosporin A has been shown to reverse drug resistance, but its mechanism of action is unclear. In this study, weekly exposures of A2780DDP cells to cyclosporin A resulted in the evolution of a revertant cell line A2780DDP/CSA that was sensitive to cisplatin again and suppressed the induction of genes necessary for the repair of drug-induced DNA damage.
CT EMTAGS: therapy (0160); heredity (0137); mammal (0738); human (0888); female (0042); controlled study (0197); human tissue, cells or cell components (0111); priority journal (0007); conference paper (0061)
Medical Descriptors:
*cancer chemotherapy
*gene repression
***ovary cancer: DT, drug therapy**
oncogene c fos
dna repair
drug resistance
tumor cell: DT, drug therapy
gene expression regulation
dna synthesis
tumor cell line
cross resistance
human
female
controlled study
human cell
priority journal
conference paper
Drug Descriptors:
*cyclosporin a: DT, drug therapy
*cisplatin: DT, drug therapy
thymidine phosphate: EC, endogenous compound
dactinomycin: DT, drug therapy
camptothecin: DT, drug therapy
fluorouracil: DT, drug therapy
methotrexate: DT, drug therapy
carboplatin: DT, drug therapy
etoposide: DT, drug therapy
tetraplatin: DT, drug therapy
boswellic acid: DT, drug therapy
zidovudine: DT, drug therapy
cytarabine: DT, drug therapy
cytidine triphosphate: DT, drug therapy
fluoropyrimidine: DT, drug therapy
RN 59865-13-3; 63798-73-2; 15663-27-1; 26035-31-4; 96081-74-2; 365-07-1; 50-76-0; 7689-03-4; 51-21-8; 59-05-2; 41575-94-4; 33419-42-0; 30516-87-1; 69-74-9; 147-94-4; 65-47-4; 675-21-8
CN (1) Vp16
CO (1) Bristol; Upjohn; Sigma; New england nuclear (United States); Sandoz

L79 ANSWER 17 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 88002934 EMBASE

TI Automated leucocyte adherence inhibition testing in patients with colorectal cancer.
AU McLeod D.K.; Isbister W.H.
CS Department of Surgery, Wellington Clinical School of Medicine, Wellington, New Zealand
SO IMMUNOL. CELL BIOL., (1987) 65/5 (377-385).
CODEN: ICBIEZ
CY Australia
DT Journal
FS 016 Cancer
026 Immunology, Serology and Transplantation
LA English
AB This paper details our initial experiences with a semi-automated leucocyte adherence inhibition (**SALAI**) assay in patients with colorectal disease. Two assay systems were used. Leucocytes from blood donors and patients with different colorectal diagnoses were tested for sensitization to colorectal tumour extracts, and leucocytes from healthy blood donors were assayed with serum from blood donors or patients to determine whether the serum itself contained factors which would react with the non-sensitized leucocytes in the test system. The sensitivity of the **SALAI** assay using patients' leucocytes was 64% and the specificity was 68%. Discriminant analysis did not affect the sensitivity of the assay for colorectal cancer (64%), although the specificity was increased for all patients except those with malignant disease other than colorectal cancer. The sensitivity of the **SALAI** assay using patients' serum was 50% but the specificity was 74%. Discriminant analysis increased the sensitivity of this assay to 80% but specificity was reduced to 61%. Thus, the **SALAI** assay with patients' serum, although potentially more advantageous than the assay using patients' leucocytes in the clinical setting, was less specific. Furthermore, samples from patients with early colorectal cancers were less reactive making the serum assay unsuitable for screening asymptomatic patients. The **SALAI** assay using patients' leucocytes, however, has a higher sensitivity than most reported variations of the assay but a slightly lower specificity. It is suggested that the **SALAI** assay is preferable to other methods for leucocycte adherence inhibition (LAI) testing.
CT EMTAGS: blood and hemopoietic system (0927); large intestine (0940); **malignant neoplastic disease** (0306); immunological factors (0136); automation, computers and data processing (0530); immunological procedures (0102); diagnosis (0140); human tissue, cells or cell components (0111); cell, tissue or organ culture (0103); human (0888)
Medical Descriptors:
*leukocyte adhesiveness
***colorectal cancer**
*cancer antigen
*cellular immunity
automation
sensitization
*cell adhesion

L79 ANSWER 18 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 87210939 EMBASE
TI The membrane glycoprotein of Friend spleen focus-forming virus: Evidence that the cell surface component is required for pathogenesis and that it binds to a receptor.
AU Li J.-P.; Bestwick R.K.; Spiro C.; Kabat D.
CS Department of Biochemistry, School of Medicine, The Oregon Health Sciences University, Portland, OR 97201, United States
SO J. VIROL., (1987) 61/9 (2782-2792).

ISSN: 0022-538X CODEN: JOVIAM
CY United States
FS 016 Cancer
047 Virology
LA English
AB The leukemogenic membrane glycoprotein of Friend spleen focus-forming virus (SFFV) has an apparent M(r) of 55,000 (gp55), is encoded by a recombinant env gene, and occurs on cell surfaces and in intracellular organelles. There is evidence that the amino-terminal region of gp55 forms a dualtropic-specific domain that is connected to the remainder of the glycoprotein by a proline-rich linker (C. Machida, R. Bestwick, B. **Boswell**, and D. Kabat, Virology 144:158-172, 1985). Using the colinear form of a cloned polycythemic strain of SFFV proviral DNA, were constructed seven in-phase env mutants by insertion of linkers and by a deletion. The mutagenized SFFVs were transfected into fibroblasts and were rescued by superinfection with a helper murine leukemia virus. Four of the mutants cause erythroblastosis. These include one with a 6-base-pair (bp) insert in the ecotropic-related sequence near the 3' end of the gene, two with a 12- or 18-bp insert in the region that encodes the proline-rich linker, and one with a 6-bp insert in the dualtropic-specific region. The other mutants (RI, Sm1, and Sm2) are nonpathogenic and contain lesions in dualtropic-specific sequences that are highly conserved among strains of SFFV. A pathogenic revertant (RI-rev) was isolated from one mouse that developed erythroblastosis 3 weeks after infection with RI. RI-rev contains a second-site env mutation that affects the same domain as the primary mutation does and that increases the size of the encoded glycoprotein. All pathogenic SFFVs encode glycoproteins that are expressed on cell surfaces, whereas the nonpathogenic glycoproteins are exclusively intracellular. The pathogenic SFFVs also specifically cause a weak interference to superinfection by dualtropic MuLVs. These results are compatible with the multidomain model for the structure of gp55 and suggest that processing of gp55 to plasma membranes is required for pathogenesis. The amino-terminal region of gp55 binds to dualtropic murine leukemia virus receptors, and this interaction is preserved in the SFFV mutants that cause erythroblastosis.
CT EMTAGS: cell, tissue or organ culture (0103); blood and hemopoietic system (0927); chemical procedures (0107); nonhuman (0777); etiology (0135); **malignant neoplastic disease** (0306); mouse (0727); heredity (0137); virus (0761)
Medical Descriptors:
*virus glycoprotein
*cell surface
*virus pathogenesis
virus mutation
cell culture
deoxyribonucleic acid transfection
virus receptor
erythroblastosis
electrophoresis
*friend leukemia virus

L79 ANSWER 19 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 87133484 EMBASE
TI A comparison of the macrophage migration inhibition (MMI) assay and the semi-automated leucocyte adherence inhibition (**SALAI**) assay.
AU Isbister W.H.; McLeod D.K.
CS University Department of Surgery, Wellington Clinical School of Medicine, Wellington, New Zealand
SO AUST. J. EXP. BIOL. MED. SCI., (1986) 64/6 (501-503).

CODEN: AJEBAK
CY Australia
FS 026 Immunology, Serology and Transplantation
LA English
CT EMTAGS: blood and hemopoietic system (0927); large intestine (0940); methodology (0130); immunological procedures (0102); **malignant neoplastic disease** (0306); diagnosis (0140); major clinical study (0150); human (0888)
Medical Descriptors:
*macrophage migration inhibition
*leukocyte adherence inhibition
colorectal cancer

L79 ANSWER 20 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 87012185 EMBASE
TI Zakariya Al-Razi's treatise on botanical, animal and mineral origin drugs used for cancer.
AU Ahmad J.; Farooqi A.H.; Siddiqi T.O.
CS Department of Pharmacognosy, Institute of History of Medicine and Medical Research, New Delhi-110062, India
SO ACTA PHARMACOL. TOXICOL., (1986) 59/SUPPL. 7 (277-278).
CODEN: APTOA6
CY Denmark
LA English
CC 016.01.02.00.00.
016.01.11.03.00.
030.24.00.00.00.
030.26.00.00.00.
037.15.00.00.00. Drug Literature Index/ANTINEOPLASTIC DRUGS AND CARCINOGENICS
CT EMTAGS: priority journal (0007); therapy (0160); **malignant neoplastic disease** (0306); short survey (0002); human (0888); ethnic or racial aspects (0050)
Medical Descriptors:
*pharmacotherapy
*botanics
*oncology
*plant drug
*cancer chemotherapy
*cuscuta epithymum
*solanum nigrum
*lactuca sativa
*spongia officinalis
*lead carbonate
boswellia glabra
*aloe barbadensis
*armenian bole
*juglans regia
*testudo elegans
*cervus duvaduceli
*aristolochia longa
*peganum harmala
*cuscuta reflexa
*brassica oleracea
*cichory
*rosa damascena
*althea officinalis
*ferula galbaniflua
*ammoniac plant

L79 ANSWER 21 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 78124389 EMBASE
TI Cytotoxic agents from Bursera morelensis (**Burseraceae**): Deoxypodophyllotoxin and a new lignan, 5'-Desmethoxydeoxypodophyllotoxin.
AU Jolad S.D.; Wiedhopf R.M.; Cole J.R.
CS Div. Pharmaceut. Chem., Coll. Pharm., Univ. Arizona, Tucson, Ariz. 85721, United States
SO J.PHARM.SCI., (1977) 66/6 (892-893).
CODEN: JPMSAE
CY United States
LA English
AB The isolation and identification of deoxypodophyllotoxin and a new lignan, 5'-desmethoxydeoxypodophyllotoxin, from the dried exudate of Bursera morelensis (**Burseraceae**) are reported. Deoxypodophyllotoxin showed high activity in the KB and PS test systems; the new lignan, although highly active against the KB test system, demonstrated only marginal activity against the PS test system. A structure is suggested for the new lignan, which was named morelensin.
CC 030.24.05.00.00.
037.15.04.00.00. Drug Literature Index/ANTINEOPLASTIC DRUGS AND CARCINOGENICS/Herbaceous substances
037.26.02.00.00. /TOXIC SUBSTANCES AND PROTECTIVE AGENTS/Plant, animal and microbial venoms and toxins
037.46.00.00.00. /DRUGS AFFECTING CELLS, ORGANELLES, INCLUSIONS
CT EMTAGS: theoretical study (0110); plant (0699); chemical drug analysis (0193)
Medical Descriptors:
*drug isolation
*plant
*mass spectrometry
*drug analysis
*drug identification
*nuclear magnetic resonance spectrometry
*drug screening
*infrared spectrometry
***leukemia**
***leukemia p 388**
*deoxypodophyllotoxin
*morelensin
*cytotoxicity
***lymphatic leukemia**
***squamous cell carcinoma**

L79 ANSWER 22 OF 22 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 78124387 EMBASE
TI Cytotoxic agents from Bursera klugii (**Burseraceae**) I. isolation of sapelins A and B..
AU Jolad S.D.; Wiedhopf R.M.; Cole J.R.
CS Div. Pharmaceut. Chem. Coll. Pharm., Univ. Arizona, Tucson, Ariz. 85721, United States
SO J.PHARM.SCI., (1977) 66/6 (889-890).
CODEN: JPMSAE
CY United States
LA English
CC 030.24.00.00.00.
037.15.04.00.00. Drug Literature Index/ANTINEOPLASTIC DRUGS AND CARCINOGENICS/Herbaceous substances
037.46.00.00.00. /DRUGS AFFECTING CELLS, ORGANELLES, INCLUSIONS

CT EMTAGS: theoretical study (0110); plant (0699); chemical drug analysis (0193); mouse (0727)
Medical Descriptors:
*drug isolation
*plant
*drug analysis
*drug identification
*mass spectrometry
*drug screening
***leukemia**
***leukemia p 388**
*plant extract
*sapelin
***lymphatic leukemia**
***squamous cell carcinoma**

=> fil medline
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L80 11 S L5
L81 63 S BOSWEL?
L82 63 S L80,L81
L83 1 S L80 AND C4./CT
L84 1 S L80 AND (LEUKOCYTE ELASTASE OR PLASMIN)/CT,CN
L85 0 S L80 AND (PULMONARY EMPHYSEMA+NT OR RESPIRATORY DISTRESS SYNDR
L86 0 S L80 AND (CYSTIC FIBROSIS OR BRONCHITIS+NT OR BRONCHIOLITIS+NT
L87 2 S L80 AND (ARTHRITIS+NT)/CT
L88 4 S L83,L84,L87

FILE 'MEDLINE' ENTERED AT 15:42:17 ON 10 FEB 1999

=> d all tot

L88 ANSWER 1 OF 4 MEDLINE
AN 1998282873 MEDLINE
DN 98282873
TI Inhibitory activity of boswellic acids from Boswellia serrata against human leukemia HL-60 cells in culture.
AU Shao Y; Ho C T; Chin C K; Badmaev V; Ma W; Huang M T
CS Department of Plant Science, Cook College, Rutgers, State University of New Jersey, New Brunswick, USA.
SO PLANTA MEDICA, (1998 May) 64 (4) 328-31.
Journal code: P9F. ISSN: 0032-0943.
CY GERMANY: Germany, Federal Republic of
DT Journal; Article; (JOURNAL ARTICLE)
LA English

EM 199809
EW 19980901
AB Four major triterpene acids including beta-boswellic acid (1), 3-O-acetyl-beta-boswellic acid (2), 11-keto-beta-boswellic acid (3), and 3-O-acetyl-11-keto-beta-boswellic acid (4) were isolated from the gum resin of Boswellia serrata and examined for their in vitro antitumor activity. They inhibited the synthesis of DNA, RNA and protein in human leukemia HL-60 cells in a dose dependent manner with IC50 values ranging from 0.6 to 7.1 microM. Among them, compound 4 induced the most pronounced inhibitory effects on DNA, RNA and protein synthesis with IC50 values of 0.6, 0.5, and 4.1 microM, respectively. The effect of 4 on DNA synthesis was found to be irreversible. Compound 4 significantly inhibited the cellular growth of HL-60 cells, but did not affect cell viability.
CT Check Tags: Human
Antineoplastic Agents, Phytogenic: IP, isolation & purification
*Antineoplastic Agents, Phytogenic: PD, pharmacology
Cell Division: DE, drug effects
DNA, Neoplasm: BI, biosynthesis
HL-60 Cells
Leukemia: GE, genetics
Leukemia: ME, metabolism
***Leukemia: PA, pathology**
Neoplasm Proteins: BI, biosynthesis
*Plants, Medicinal: CH, chemistry
RNA, Neoplasm: BI, biosynthesis
Triterpenes: IP, isolation & purification
*Triterpenes: PD, pharmacology
RN **631-69-6 (boswellic acid)**
CN 0 (Antineoplastic Agents, Phytogenic); 0 (DNA, Neoplasm); 0 (Neoplasm Proteins); 0 (RNA, Neoplasm); 0 (Triterpenes)

L88 ANSWER 2 OF 4 MEDLINE
AN 97256690 MEDLINE
DN 97256690
TI Inhibition by boswellic acids of human leukocyte elastase.
AU Safayhi H; Rall B; Sailer E R; Ammon H P
CS Department of Pharmacology, Institute of Pharmaceutical Sciences, University of Tuebingen, Germany.
SO JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, (1997 Apr) 281 (1) 460-3.
Journal code: JP3. ISSN: 0022-3565.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199707
EW 19970702
AB Frankincense extracts and boswellic acids, biologically active pentacyclic triterpenes of frankincense, block leukotriene biosynthesis and exert potent anti-inflammatory effects. Screening for additional effects of boswellic acids on further proinflammatory pathways, we observed that acetyl-11-keto-beta-boswellic acid, an established direct, nonredox and noncompetitive 5-lipoxygenase inhibitor, decreased the activity of human leukocyte elastase (HLE) in vitro with an IC50 value of about 15 microM. Among the pentacyclic triterpenes tested in concentrations up to 20 microM, we also observed substantial inhibtion by beta-boswellic acid, amyrin and ursolic acid, but not by 18beta-glycyrrhetinic acid. The data show that the dual inhibition of 5-lipoxygenase and HLE is unique to boswellic acids: other pentacyclic triterpenes with HLE inhibitory

activities (e.g., ursolic acid and amyrin) do not inhibit 5-lipoxygenase, and leukotriene biosynthesis inhibitors from different chemical classes (e.g., NDGA, MK-886 and ZM-230,487) do not impair HLE activity. Because leukotriene formation and HLE release are increased simultaneously by neutrophil stimulation in a variety of inflammation- and hypersensitivity-based human diseases, the reported blockade of two proinflammatory enzymes by boswellic acids might be the rationale for the putative antiphlogistic activity of acetyl-11-keto-beta-boswellic acid and derivatives.

CT Check Tags: Human
*Anti-Inflammatory Agents, Non-Steroidal: PD, pharmacology
Arachidonate 5-Lipoxygenase: AI, antagonists & inhibitors
***Leukocyte Elastase: AI, antagonists & inhibitors**
Structure-Activity Relationship
*Triterpenes: PD, pharmacology

RN **631-69-6 (boswellic acid)**

CN EC 1.13.11.34 (Arachidonate 5-Lipoxygenase); **EC 3.4.21.37 (Leukocyte Elastase)**; 0 (Anti-Inflammatory Agents, Non-Steroidal); 0 (Triterpenes)

L88 ANSWER 3 OF 4 MEDLINE

AN 90035645 MEDLINE

DN 90035645

TI Anti-arthritic activity of boswellic acids in bovine serum albumin (BSA)-induced arthritis.

AU Sharma M L; Bani S; Singh G B

CS Discipline of Pharmacology, Regional Research Laboratory (CSIR), Jammu Tawi, India..

SO INTERNATIONAL JOURNAL OF IMMUNOPHARMACOLOGY, (1989) 11 (6) 647-52. Journal code: GRI. ISSN: 0192-0561.

CY ENGLAND: United Kingdom

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199002

AB The effect of boswellic acids on bovine serum albumin (BSA)-induced arthritis in rabbits was studied. Oral administration of boswellic acids (25, 50 and 100 mg/kg/day) significantly reduced the population of leucocytes in a BSA-injected knee and changed the electrophoretic pattern of the synovial fluid proteins. The local injection of boswellic acids (5, 10 and 20 mg) into the knee 15 min prior to BSA challenge also significantly reduced the infiltration of leucocytes into the knee joint, reduced the infiltration of leucocytes into the pleural cavity and inhibited the migration of PMN in vitro. The leucocyte-inhibitory activity of boswellic acids was not due to its cytotoxic effect. The boswellic acids did not show any detergent or surfactant properties.

CT Check Tags: Animal
Anti-Inflammatory Agents, Non-Steroidal: AE, adverse effects
*Anti-Inflammatory Agents, Non-Steroidal: TU, therapeutic use
Arthritis
***Arthritis, Adjuvant: DT, drug therapy**
Arthritis, Adjuvant: PP, physiopathology
Carrageenan
Cattle
Cell Movement: DE, drug effects
Hemolysis: DE, drug effects
Irritants
Neutrophils: DE, drug effects
Pleurisy: CI, chemically induced

Pleurisy: DT, drug therapy
Rabbits
Rats
Serum Albumin, Bovine
Triterpenes: AE, adverse effects
*Triterpenes: TU, therapeutic use
RN **631-69-6 (boswellic acid)**; 9000-07-1 (Carrageenan)
CN 0 (Irritants); 0 (Serum Albumin, Bovine); 0 (Triterpenes)

L88 ANSWER 4 OF 4 MEDLINE
AN 88114536 MEDLINE
DN 88114536
TI Effect of a new non-steroidal anti-inflammatory agent on lysosomal stability in adjuvant induced arthritis.
AU Kesava Reddy G; Dhar S C
CS Department of Biochemistry, Central Leather Research Institute, Madras, India..
SO ITALIAN JOURNAL OF BIOCHEMISTRY, (1987 Jul-Aug) 36 (4) 205-17.
Journal code: GYW. ISSN: 0021-2938.
CY Italy
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198805
AB The effect of new non-steroidal anti-inflammatory agents on lysosomal stability was studied by determining the activity of beta-glucuronidase, a typical lysosomal enzyme, in various sub-cellular fractions and its release from the lysosome-rich fraction. Adjuvant arthritic animals showed a significant increase in the beta-glucuronidase activity in sub-cellular fractions. The increased rate of the release of beta-glucuronidase from lysosome-rich fraction clearly suggested that arthritic syndrome caused decreased stability of the lysosomes. Administration of boswellic acids or salai-guggal to arthritic animals was found to increase the lysosomal stability by inhibiting the rate of release from lysosome-rich fraction and reducing beta-glucuronidase activity in various sub-cellular fractions. Of the two anti-inflammatory agents tested, salai-guggal was found to afford more therapeutic value than boswellic acids.
CT Check Tags: Animal; Male; Support, Non-U.S. Gov't
*Anti-Inflammatory Agents, Non-Steroidal: PD, pharmacology
***Arthritis: EN, enzymology**
***Arthritis, Adjuvant: EN, enzymology**
*Lysosomes: DE, drug effects
Osmotic Fragility: DE, drug effects
Rats
Triterpenes: PD, pharmacology
RN **631-69-6 (boswellic acid)**
CN 0 (Sallaki); 0 (Triterpenes)

=> fil cancer
FILE 'CANCERLIT' ENTERED AT 15:43:06 ON 10 FEB 1999

FILE COVERS 1963 TO 27 Jan 1999 (19990127/ED)

Cancerlit has been reloaded with 1998 MeSH headings. See NEWS FILE and HELP RLOAD for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

The problem with incorrect information in the Document Type (DT) field has been corrected.

=> d his 189-

(FILE 'MEDLINE' ENTERED AT 15:42:17 ON 10 FEB 1999)

FILE 'CANCERLIT' ENTERED AT 15:42:27 ON 10 FEB 1999
L89 10 S L82
L90 4 S L89 NOT MEDLINE/OS

FILE 'CANCERLIT' ENTERED AT 15:43:06 ON 10 FEB 1999

=> d all tot

L90 ANSWER 1 OF 4 CANCERLIT
AN 1998639465 CANCERLIT
DN 98639465
TI Antitumor activity of beta-**boswellic** acid and its related triterpene acids from the gum resin exudate of the tree **Boswellia** serrata (Meeting abstract).
AU Huang M-T; Shao Y; Ma W; Badmaev V; Chin C-K; Ho C-T
CS Lab. for Cancer Res., Dept. Chem. Biol., Coll. Pharm., Rutgers Univ., Piscataway, NJ 08855.
SO Proc Annu Meet Am Assoc Cancer Res, (1997). Vol. 38, pp. A2465. ISSN: 0197-016X.
DT (MEETING ABSTRACT)
FS ICDB
LA English
EM 199802
AB The gum resin exudate from the stem of the tree **Boswellia** serrata has been used as a traditional medicine in India and China for the treatment of inflammation, arthritic pain, wounds, and other diseases. We found that **Boswellin** (an alcohol extract of the gum resin exudate of **Boswellia** serrata containing about 60% **boswellic** acids) strongly inhibited the growth of HL-60 cells in culture and the synthesis of DNA, RNA, and protein in HL-60 cells. In additional studies, we have isolated and purified 4 major triterpene acids: (1) beta-**boswellic** acid, (2) 3-O-acetyl-beta-**boswellic** acid, (3) 11-keto-beta-**boswellic** acid, and (4) 3-O-acetyl-11-keto-beta-**boswellic** acid from **Boswellin** by repeatedly extracted with KOH solution and ethyl acetate and separated by a silica gel column chromatography. All 4 triterpene acids markedly inhibited the synthesis of DNA, RNA and protein in HL-60 cells in a dose-dependent manner with IC50 values ranging from 0.6-7.1 uM. Among them 3-O-acetyl-11-keto-beta-**boswellic** acid was the most potent inhibitor, and its inhibitory effect on the synthesis of DNA was irreversible.
CT Check Tags: Human
DNA, Neoplasm: BI, biosynthesis
DNA, Neoplasm: DE, drug effects
HL-60 Cells
*Plant Extracts: PD, pharmacology
Plants, Medicinal: CH, chemistry
Protein Synthesis Inhibitors: PD, pharmacology
RNA, Neoplasm: BI, biosynthesis
RNA, Neoplasm: DE, drug effects
Trees
*Triterpenes: PD, pharmacology

RN **631-69-6 (boswellic acid)**
CN 0 (DNA, Neoplasm); 0 (Plant Extracts); 0 (Protein Synthesis Inhibitors); 0 (RNA, Neoplasm); 0 (Triterpenes)

L90 ANSWER 2 OF 4 CANCERLIT
AN 1998639464 CANCERLIT
DN 98639464
TI Inhibitory effect of an extract of the gum resin exudate of **Boswellia** serrata on 12-O-tetradecanoylphorbol-13-acetate (TPA)-induced skin tumor promotion in mice (Meeting abstract).
AU Huang M-T; Badmaev V; Xie J-G; Lou Y-R; Lu Y P; Ho C-T
CS Lab. for Cancer Res., Coll. of Pharmacy, Rutgers Univ., Piscataway, NJ 08855.
SO Proc Annu Meet Am Assoc Cancer Res, (1997). Vol. 38, pp. A2464. ISSN: 0197-016X.
DT (MEETING ABSTRACT)
FS ICDB
LA English
EM 199802
AB The gum resin exudate from the stem of the tree **Boswellia** serrata has been used as a traditional medicine in India and China for the treatment of inflammation, arthritic pain, wounds, and other diseases. We found that **Boswellin** (an alcohol extract of the gum resin exudate of **Boswellia** serrata containing about 60% **boswellic** acids) strongly inhibited TPA-induced inflammation and tumor promotion in mouse epidermis. Topical application of 1.2 - 3.6 mg of **Boswellin** with 5 nmol of TPA to the backs of CD-1 mice once a day for 2-3 days strongly inhibited TPA-induced increases in the number of epidermal cell layers, epidermal thickness and inflammatory cell infiltration. Topical application of 1.2 or 3.6 mg of **Boswellin** with 5 nmol TPA twice weekly for 16 weeks to the backs of mice previously initiated with 200 nmol of 7,12-dimethylbenz[a]anthracene inhibited the number of TPA-induced skin tumors per mouse by 87 or 99%, respectively, and the percent of mice with skin tumors was inhibited by 59 or 92%, respectively. The 1.2 or 3.6 mg **Boswellin** treatment resulted in 4 weeks or 8 weeks latency of tumor formation, respectively. These results suggest that beta-**boswellic** acids are potent inhibitors of skin tumor promotion.
CT Check Tags: Animal
*Anticarcinogenic Agents: PD, pharmacology
Mice
*Plant Extracts: PD, pharmacology
Plants, Medicinal: CH, chemistry
Skin Neoplasms: CI, chemically induced
*Skin Neoplasms: PC, prevention & control
*Tetradecanoylphorbol Acetate: TO, toxicity
Trees
*Triterpenes: PD, pharmacology
RN **631-69-6 (boswellic acid)**; 16561-29-8 (Tetradecanoylphorbol Acetate)
CN 0 (Anticarcinogenic Agents); 0 (Plant Extracts); 0 (Triterpenes)

L90 ANSWER 3 OF 4 CANCERLIT
AN 1998638458 CANCERLIT
DN 98638458
TI Analysis of pentacyclic triterpene-mediated antiproliferative effects on malignant melanoma cells (Meeting abstract).
AU Bogenrieder T; Glaessl A; Bosserhoff A-K; Sailer E-R; Landthaler M; Ammon H P T; Stolz W

CS University of Regensburg, Regensburg, Germany 93042.
SO Proc Annu Meet Am Assoc Cancer Res, (1997). Vol. 38, pp. A1458.
ISSN: 0197-016X.
DT (MEETING ABSTRACT)
FS ICDB
LA English
EM 199802
AB Recently, the pentacyclic triterpene betulinic acid (BA) has been shown to be a selective inhibitor of human melanoma that functions by the induction of apoptosis (Nature Medicine; 1:1046). Isolated from the gum resin of **Boswellia** serrate, acetyl-11-keto-beta-**boswellic** acid (AKBA) is another pentacyclic triterpene derivative which induces apoptosis in HL-60 leukemia cells (Hoernlein RF et al, personal communication). We therefore evaluated the antiproliferative effects of both BA and AKBA against the human metastatic malignant melanoma cell line SK-MEL 28 at concentrations in the range of 3-30 uM. Cells were plated in triplicate wells and growth assays were performed on two separate occasions. Cell number was determined on day 4 using a hemocytometer. Percent inhibition is in comparison to untreated controls. AKBA at concentrations between 3 and 30 uM caused a dose-dependent growth inhibition. Maximal effect was observed at 30 uM with 93% growth inhibition. In contrast, melanoma cells were only moderately growth inhibited (25%) by BA at various concentrations, even at 30 uM. These data indicate that AKBA may be an even more effective drug in melanoma growth inhibition than BA.
CT Check Tags: Human
*Antineoplastic Agents, Phytogenic: TU, therapeutic use
*Lipoxygenase Inhibitors: TU, therapeutic use
*Melanoma, Experimental: DT, drug therapy
Melanoma, Experimental: PA, pathology
*Triterpenes: TU, therapeutic use
RN 472-15-1 (betulinic acid)
CN 0 (acetyl-11-ketoboswellic acid); 0 (Antineoplastic Agents, Phytogenic); 0 (Lipoxygenase Inhibitors); 0 (Triterpenes)

L90 ANSWER 4 OF 4 CANCERLIT
AN 1998638291 CANCERLIT
DN 98638291
TI Acetyl-11-keto-beta-**boswellic** acid induces apoptosis in HL60 and CCRF-CEM cells and inhibits topoisomerase I (Meeting abstract).
AU Hoernlein R F; Orlikowsky T; Zehrer C; Niethammer D; Sailer E R; Dannecker G E; Ammon H P T
CS Inst. of Pharmaceutical Sciences, Auf der Morgenstelle 8, 72076 Tuebingen, Germany.
SO Proc Annu Meet Am Assoc Cancer Res, (1997). Vol. 38, pp. A1291.
ISSN: 0197-016X.
DT (MEETING ABSTRACT)
FS ICDB
LA English
EM 199806
AB Acetyl-11-keto-beta-**boswellic** acid (AKBA) is a naturally occurring pentacyclic triterpene isolated from **Boswellia** serrata Roxb. (Burseraceae) which inhibits mammalian 5-lipoxygenases (IC50 1.5 uM in intact rat PMNL). As some 5-lipoxygenase (5-LO) inhibitors were reported to induce apoptosis, we investigated the effect of AKBA on leukemic cell growth. Proliferation of HL60 and CCRF-CEM cells in the presence of AKBA and the structural analogue alpha-amyrin was tested. Cell counts and 3H-thymidine incorporation were significantly reduced in a dose-dependent manner in the presence of AKBA (IC50 30 uM) compared to

controls. An additive effect with the crosslinking of the CD95-receptor, which is known to induce apoptosis under certain conditions, was also observed. AKBA-treated cells showed morphological changes like membrane blebbing and subsequent flow cytometric analysis of propidium-iodide stained cells demonstrated signs of apoptosis. Sub-G1-peaks could be observed after 4 hours. However, since 5-LO mRNA can not be detected in undifferentiated HL60 nor CCRF cells, a mechanism different from 5-LO inhibition must account for AKBA's effect. As inhibitors of topoisomerases (topo) are known to be inducers of apoptosis, we investigated the effect of AKBA on topo I from calf thymus in vitro. In a DNA-relaxation assay with phiX174RF DNA, AKBA inhibited topo I with IC50=20 uM. This suggests that induction of apoptosis in HL60 and CCRF-CEM by AKBA might be due to inhibition of topo I in these cells.

CT Check Tags: Human
*Apoptosis: DE, drug effects
Cell Division: DE, drug effects
*DNA Topoisomerase: AI, antagonists & inhibitors
*Enzyme Inhibitors: PD, pharmacology
Flow Cytometry
G1 Phase
*Triterpenes: PD, pharmacology
Tumor Cells, Cultured

CN 0 (acetyl-11-ketoboswellic acid); EC 5.99.1.2 (DNA Topoisomerase); 0 (Enzyme Inhibitors); 0 (Triterpenes)

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=> fil wpids
FILE 'WPIDS' ENTERED AT 15:48:58 ON 10 FEB 1999
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FILE LAST UPDATED: 03 FEB 1999              <19990203/UP>
>>>UPDATE WEEKS:
MOST RECENT DERWENT WEEK            199905   <199905/DW>
DERWENT WEEK FOR CHEMICAL CODING:   199905
DERWENT WEEK FOR POLYMER INDEXING:  199905
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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>>> INDEXING UPDATE CODES JUMP FORWARD TO 9901   -  SEE NEWS <<<

=> d his l91-

     (FILE 'CANCERLIT' ENTERED AT 15:43:06 ON 10 FEB 1999)

     FILE 'WPIDS' ENTERED AT 15:43:20 ON 10 FEB 1999
L91          21 S BOSWEL?
L92         187 S OLIBANUM OR DAMARA OR D ORIENTALIS OR FRANKINCENS? OR BURSERA
L93         202 S L91,L92
L94           1 S L93 AND (ELASTASE OR PLASMIN OR FIBRINOLYSIN OR THROMBOLYSIN)
L95          26 S L93 AND (B14-C09? OR C14-C09? OR B12-D03 OR C12-D03 OR B14-H0
L96           2 S L93 AND (B14-K01? OR C14-K01? OR B12-K? OR C12-K?)/MC
L97          12 SEA L93 AND (P421 OR P423 OR P631 OR P633 OR P820)/M0,M1,M2,M3,
                M4,M5,M6
L98          30 S L94-L97

     FILE 'WPIDS' ENTERED AT 15:48:58 ON 10 FEB 1999

=> d all tot l98
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L98 ANSWER 1 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 99-045269 [04] WPIDS
DNC C99-014178
TI Composition for treating bone and joint inflammatory conditions - comprises systemically absorbable cartilage and aminosaccharide.
DC B04 D16
IN WEISMAN, B
PA (WEIS-I) WEISMAN B
CYC 82
PI WO 9852583 A1 981126 (9904)* EN 39 pp A61K035-32
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
ADT WO 9852583 A1 WO 98-US10758 980522
PRAI US 97-862513 970523
IC ICM A61K035-32
AB WO 9852583 A UPAB: 990127
Composition for treating conditions characterised by bone or joint inflammation, in mammals comprises (A) systemically absorbable cartilage (SAC); (B) an aminosaccharide (AS); and optionally (C) (i) a mucopolysaccharide (MPS); (ii) proteolytic enzymes (PE) and (i); (iii) (a) an extract of a herb of the genus Withenia, (b) an extract of the bark of a herb of the genus Salix, or (c) a root of the herb of the genus Panax, and (i) and (ii); (iv) **boswellic** acid or its derivatives and (i), (ii) and (iiia) or (iiic); or (v) chondroitin and (i), (ii), (iv) and (iiia) or (iiic).
USE - The composition can be used to treat conditions characterised by bone and joint inflammation such as arthritis, rheumatism, rheumatoid arthritis, bursitis, tendonitis and gout.
ADVANTAGE - The composition overcomes the disadvantages of known treatments i.e not sufficiently alleviating pain and discomfort and restoring the use of inflamed joints or causing side effects.
Dwg.0/0
FS CPI
FA AB
MC CPI: B04-A10; B04-A10F; B04-A10H; B04-B04E; B04-C02E2; B04-C02F; B04-L05C; B14-C02; B14-C06; **B14-C09**; **B14-C09B**; D05-A02

L98 ANSWER 2 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 98-506473 [43] WPIDS
DNC C98-152852
TI Medical or cosmetic composition for treating sports injuries, etc. - comprises essential oil, spice and/or herb.
DC B04 D21
IN FLETCHER, J C; RILEY, M J H
PA (RILE-N) RILEY FLETCHER FOUND
CYC 81
PI WO 9840086 A2 980917 (9843)* EN 89 pp A61K035-00
RW: AT BE CH DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
AU 9864082 A 980929 (9906) A61K035-00

ADT WO 9840086 A2 WO 98-GB708 980310; AU 9864082 A AU 98-64082 980310
FDT AU 9864082 A Based on WO 9840086
PRAI GB 97-4904 970310
IC ICM A61K035-00
AB WO 9840086 A UPAB: 981028
Medical or cosmetic composition comprises at least 1 essential oil in combination with at least 1 spice and/or at least 1 herb.
The essential oil is preferably selected from bergamot, chamomile, german, chamomile maroc, chamomile roman, cinnamon zeylanicum, clove buds, eucalyptus globulus, **frankincense**, fennel, hyssop, juniper, lemon grass, mountain savoury, niaouli, red thyme, rosemary, rose geranium, tagestes and ylang ylang. The Chinese herbs are selected from Acaia Catechu, Acanthopanax granilistylus, Caesalpinia Sappan and Epimedium Spinosa. The spices are selected from asapoetidia, coconut, coriander, fenugreek and horseradish. The composition also contains Aloe vera extract , a honey product and at least 1 vitamin, mineral, amino acid, enzyme, flavouring and/or Bach flower remedy.
USE - The medical composition is used for treating disease or physical disability or sports injuries, or for build up and maintenance of the immune system or for protection against disease or pollution. The cosmetic formulation is used for skin care and/or weight management. The cosmetic composition is topically applied
Dwg.0/0
FS CPI
FA AB
MC CPI: B04-A08; B04-A09; B04-A10; B04-B01A; B04-B01C; B14-N17; D08-B09A

L98 ANSWER 3 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 98-087561 [09] WPIDS
DNN N98-069470 DNC C98-029681
TI Analgesic for e.g. rheumatism.
DC B04 P33
IN WANG, Y
PA (WANG-I) WANG Y
CYC 1
PI CN 1138997 A 970101 (9809)* A61K035-78
ADT CN 1138997 A CN 95-117857 951221
PRAI CN 95-117857 951221
IC ICM A61K035-78
ICS A61J003-02; A61K009-16
AB CN 1138997 A UPAB: 980302
Analgesic composition comprises e.g. angelica, safflower, Saposhnikovia divaricata, **frankincense** and myrrh is prepared by drying, crushing, sieving, mixing, bottling, disinfecting and packing. The analgesic is then mixed with Shaoxing wine to give an ointment and applied on a dressing to the affected part. The analgesic is used for treating rheumatism, arthritis, sprains and arthrodynia without side effects.
FS CPI GMPI
FA AB
MC CPI: B04-A08C2; B04-A10; B12-M02B; B14-C01; B14-C06; **B14-C09**

L98 ANSWER 4 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 98-043010 [05] WPIDS
DNC C98-014595
TI Chinese medicine for curing colitis.
DC B04
IN WANG, F
PA (WANG-I) WANG F
CYC 1

PI CN 1137399 A 961211 (9805)* A61K035-78
ADT CN 1137399 A CN 96-101163 960217
PRAI CN 96-101163 960217
IC ICM A61K035-78
AB CN 1137399 A UPAB: 980202
Chinese medicine contains astragalus root, rhubarb, Chinese gall, **frankincense**, myrrh, hyacinth bletilla, red halloysite, borax, realgar, borneol, cow-bezoar and toad venom. The preparation can destroy enteric pathogenic bacteria, improve local microcirculation, and can clear and activate channels and collaterals, remove necrotic tissue and promote granulation. The medicine has an effective rate of 100 % and a cure rate of above 90 %.
Dwg.0/0
FS CPI
FA AB
MC CPI: B04-A10; B04-B04M; B10-E02; B14-A01; **B14-H01**

L98 ANSWER 5 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 98-043007 [05] WPIDS
DNC C98-014592
TI Spur pain-relieving plaster.
DC B04
IN YANG, L; YANG, M; YANG, S
PA (YANG-I) YANG S
CYC 1
PI CN 1137396 A 961211 (9805)* A61K035-78
ADT CN 1137396 A CN 96-100012 960228
PRAI CN 96-100012 960228
IC ICM A61K035-78
ICS A61K009-06
AB CN 1137396 A UPAB: 980202
Guci Xiaotong Gao plaster for curing hyperosteogeny is made from 21 Chinese medicinal materials e.g. turtle shell, tortoise plastron, raw aconite main tuber, **frankincense** and myrrh which are prepared by boiling. The plaster clears and activates the channels and collaterals, promotes blood circulation by removing blood stasis, removes dampness and relieves swelling and pain. The plaster can also be used to treat arthritis. The plaster is easy to use, low in cost, and its curative rate is 98.7%.
Dwg.0/0
FS CPI
FA AB
MC CPI: B04-A10; B04-B04M; B12-M02D; **B14-C09**

L98 ANSWER 6 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 98-019095 [03] WPIDS
DNN N98-014543 DNC C98-007175
TI Repellent analgesic ointment for cancer or tumour.
DC B04 P33
IN TANG, S
PA (TANG-I) TANG S
CYC 1
PI CN 1133725 A 961023 (9803)* A61K035-78
ADT CN 1133725 A CN 95-119266 951203
PRAI CN 95-119266 951203
IC ICM A61K035-78
ICS A61J003-04; A61K009-06
AB CN 1133725 A UPAB: 980119
An exterior-use plaster is prepared from 26 Chinese medicinal materials

e.g. realgar, rhubarb, sodium sulphate, **frankincense**, myrrh, as well as dimethyl sulphoxide.

USE - The plaster has a total effective rate of 68.6% for shrinking liver tumour and an analgesic rate of more than 96% for liver cancer.

FS CPI GMPI
FA AB
MC CPI: B04-A10; B10-A10; B14-C01; **B14-H01**

L98 ANSWER 7 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 98-000279 [01] WPIDS
DNN N98-000146 DNC C98-000190
TI Yingfengaidi medicine production.
DC B04 P33
IN LU, Y
PA (LUYY-I) LU Y
CYC 1
PI CN 1131037 A 960918 (9801)* A61K035-78
ADT CN 1131037 A CN 95-119652 951112
PRAI CN 95-119652 951112
IC ICM A61K035-78
ICS A61J003-00; A61K009-06; A61K009-16; A61K009-70
AB CN 1131037 A UPAB: 980107
A new anti-carcinogen is suitable for external application to cure exposure carcinosis. It is prepared from 21 Chinese medicinal materials such as datura flower, yellow azalea flower, **frankincense**, myrrh, sal ammoniac, arsenic, mercury, realgar, kansui root, euphorbia/knoxia root, genkwa flower, rhubarb, centipede, mylabris, nux vomica seed, indigo and trichosanthes root. The process involves pulverising, deep- frying and decocting makes the medicinal materials into a powder, ointment and adhesive plaster.
FS CPI GMPI
FA AB
MC CPI: B04-A10; B05-A03A; B12-M02D; **B14-H01**

L98 ANSWER 8 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-536990 [50] WPIDS
DNC C97-171882
TI Medicinal ointment for resolving blood stasis.
DC B04
IN LIU, D
PA (LIUD-I) LIU D
CYC 1
PI CN 1128660 A 960814 (9750)* A61K035-78
ADT CN 1128660 A CN 94-112488 940829
PRAI CN 93-115003 931123
IC ICM A61K035-78
ICS A61K009-06; A61K009-70
AB CN 1128660 A UPAB: 971217
Medicinal ointment for resolving blood stasis comprises sichuan aconite root, wild aconite root, betel nut, dried rhizome of rehmannia, root of Dahurian agelica, **frankincense**, myrrh, pangolin, musk, red lead and sesame oil as raw materials. The sesame oil is dehydrated by heating, then the aforementioned components with the exception of red lead are put in the sesame oil successively and fried until they are black and charred. The residues are removed from the decoction and filtered and settled. The filtrate is heated and the red lead is put in to stir and fry until it is black. Then the finished product is bottled after cooling.

USE - The ointment clears and activates the channels and collaterals, promoting the circulation of blood and removing blood stasis, as well as

removing the necrotic tissue to promote regeneration.
FS CPI
FA AB
MC CPI: B04-A08; B04-A09D; B04-B01C; B05-A03B; B14-F02; **B14-H01**

L98 ANSWER 9 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-490773 [46] WPIDS
DNC C97-156602
TI Traditional Chinese herb medicinal pellets for restoring life.
DC B04
IN LUO, Y
PA (LUOY-I) LUO Y
CYC 1
PI CN 1122713 A 960522 (9746)* A61K035-78
ADT CN 1122713 A CN 95-113008 950929
PRAI CN 95-113008 950929
IC ICM A61K035-78
AB CN 1122713 A UPAB: 971119
Chinese herb medicinal pellets are used for treatment of injury, hyperostosis and rheumatic arthritis and comprises 28 Chinese medicines, e.g. root of achyranthes bidentata, root of Chinese angelica, peach kernel, tuber of sparganium, **frankincense**, myrrh.
USE - The pellets can be used both for oral administration and external application.
FS CPI
FA AB
MC CPI: B04-A10; **B14-C09B**; B14-N01

L98 ANSWER 10 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-490760 [46] WPIDS
DNC C97-156589
TI Medicinal powder for curing mastosis, tumour etc..
DC B04
IN FU, Z
PA (FUZZ-I) FU Z
CYC 1
PI CN 1122700 A 960522 (9746)* A61K035-78
ADT CN 1122700 A CN 94-111970 941108
PRAI CN 94-111970 941108
IC ICM A61K035-78
AB CN 1122700 A UPAB: 971119
Medicinal powder comprises garcinia, realgar, **frankincense**, myrrh, artemisia rupestris, rosin, vomiting nut and alum and is prepared by preprocessing, smashing, sifting, mixing and packaging.
USE - The process is useful for the treatment of mastosis including acute mastitis, mammary tuberculosis sore and tumour with a total effective rate of up to 97%.
FS CPI
FA AB
MC CPI: B04-A10; **B14-H01**

L98 ANSWER 11 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-449598 [42] WPIDS
DNC C97-143534
TI Traditional Chinese medicinal paste for treating lympho-tuberculosis.
DC B04
IN YANG, J
PA (YANG-I) YANG J
CYC 1

PI CN 1117397 A 960228 (9742)* A61K035-78
ADT CN 1117397 A CN 95-104677 950422
PRAI CN 95-104677 950422
IC ICM A61K035-78
AB CN 1117397 A UPAB: 971021
The ointment for external use contains ground beetle, **frankincense**, myrrh, croton seed, apricot kernel, verdigris, rosin, castor oil and sesame oil. The apricot kernel and croton seed are fried in boiling castor oil and sesame oil, and then the other ingredients which have been ground into a fine powder are added. The paste can be used for the treatment of lympho-tuberculosis and lymphoma with definite curative effects.
FS CPI
FA AB
MC CPI: B04-A10G; B14-A01B1; **B14-H01**

L98 ANSWER 12 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-449591 [42] WPIDS
DNC C97-143527
TI Analgesic containing **frankincense**, myrrh, etc..
DC B04
IN YANG, R
PA (YANG-I) YANG R
CYC 1
PI CN 1117390 A 960228 (9742)* A61K035-78
ADT CN 1117390 A CN 94-111139 940825
PRAI CN 94-111139 940825
IC ICM A61K035-78
AB CN 1117390 A UPAB: 971021
The analgesic consists of **frankincense**, myrrh, seed of strychnos, root of aconitum and twenty other traditional Chinese medicinal ingredients. The analgesic can be used for the treatment of arthritis, ischias, arthralgia and tibia disease, and the curative rate reaches 90%.
FS CPI
FA AB
MC CPI: B04-A08C2; B04-A10; B14-C01; **B14-C09**; B14-N01

L98 ANSWER 13 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-416183 [39] WPIDS
DNC C97-133354
TI Anti-cancer Chinese drug-Xiaoliujing capsule.
DC B04
IN ZHOU, W
PA (ZHOU-I) ZHOU W
CYC 1
PI CN 1113790 A 951227 (9739)* A61K035-78
ADT CN 1113790 A CN 94-110281 940527
PRAI CN 94-110281 940527
IC ICM A61K035-78
AB CN 1113790 A UPAB: 970926
Anticancer Chinese drug-Xiaoliujing capsule comprises root of American ginseng, leech, corydalis tuber, notoginseng, Chinese angelica root, prepared rhizome of Curcuma aromatica, root of Chinese Stellaria, herb of Blushred Rabdosia, **frankincense**, myrrh, toad venom, pilose deer horn, flavescent sophora root, coptis root, batryticated silkworm and Chinese caterpillar fungus. The ingredients are pulverized, uniformly mixed, screened by sieve number zero three times, and then aseptically placed in capsule number zero. The capsules are easy to take and can be stored for a long time.
FS CPI

FA AB
MC CPI: B04-A08C2; B04-A10F; B04-B04C1; B04-B04L; B04-B04M; B04-F09; **B14-H01**

L98 ANSWER 14 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-364532 [34] WPIDS
DNC C97-116949
TI Traditional Chinese anti-tumour medicine regulating and recovering soup.
DC B04
IN YAN, D
PA (YAND-I) YAN D
CYC 1
PI CN 1109337 A 951004 (9734)* A61K035-78
ADT CN 1109337 A CN 94-102959 940328
PRAI CN 94-102959 940328
IC ICM A61K035-78
AB CN 1109337 A UPAB: 970820
Traditional Chineseanti-neoplastic medicine is prepared in weight ratio 1.5-4.4% of pangolin scales, turtle shell, bark of official magnolia, rhizome of Chinese gold thread, ochre, ginkgo, subprostrate sophora, ligusticum rhizoma, akebi, agalloch eaglewood, green tangerine peel, **frankincense** and myrrh; 2.9-5.9% of each of trichosanthes fruit and poria; 4.4-7.4% of Chinese violet, 7.4-10.3% of each of self heal, marine algae, hairyvein agrimony, root of Chinese pulsatilla and tuber of multiflower knotweed. In clinical observation of 31 cases, the total effective rate is 90%, curativerate is 12%. It features less side effect, simple process, convenience and less environmental pollution.
FS CPI
FA AB
MC CPI: B04-A08C2; B04-A09; B04-A10; B04-B04M; **B14-H01**

L98 ANSWER 15 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-320458 [30] WPIDS
DNC C97-103630
TI Dysphagia ointment.
DC B04
IN WANG, S
PA (WANG-I) WANG S
CYC 1
PI CN 1105575 A 950726 (9730)* A61K035-78
ADT CN 1105575 A CN 94-101039 940303
PRAI CN 94-101039 940303
IC ICM A61K035-78
ICS A61K009-06
AB CN 1105575 A UPAB: 970723
Chinese adhesive plaster-''Yege Gao'' is prepared by frying gum-resin from Ferula asafoetida, ginseng, astragalus root, nutgrass flatsedge rhizome, **frankincense** and myrrh in vegetable oil to extract the effective components, filtering to remove the residue,decotering the vegetable oilusing a slow fire to concentrate it into paste material, cooling the paste and adding the Chinese medicines sea dragon, sea horse and eagle wood which have been ground into fine powder, pouring into cold water and at 50-80 deg.C appling to a backing material. The plasters can be applied to acupoints of Chihai, Shihmen, Kuanyuan and right and left Tsusanli for treating carcinoma of oesophagus and cardiac cancer.
FS CPI
FA AB
MC CPI: B04-A10; B12-M02D; **B14-H01**

L98 ANSWER 16 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-290001 [27] WPIDS
DNC C97-093437
TI Tongqiaohuasheng pills used against malignant tumours.
DC B04
IN GUAN, X
PA (GUAN-I) GUAN X
CYC 1
PI CN 1103591 A 950614 (9727)* A61K035-78
ADT CN 1103591 A CN 93-120458 931208
PRAI CN 93-120458 931208
IC ICM A61K035-78
AB CN 1103591 A UPAB: 970702
The Tongqiaohuashen pill is a medicine used against malignant tumours, especially those of the digestive system. The medicine comprises e.g. dragon's blood, toad-cake, **frankincense**, Agkistrodon acutus, gecko and musk.
ADVANTAGE - The pill has an effective rate greater than 81.5%, as seen in experiments with 38 patients.
FS CPI
FA AB
MC CPI: B04-A08C2; B04-A10; **B14-H01**

L98 ANSWER 17 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-236614 [22] WPIDS
DNC C97-076022
TI Plaster for treatment of carcinosis pain.
DC B04
IN DU, Y
PA (DUYY-I) DU Y
CYC 1
PI CN 1099295 A 950301 (9722)* A61K035-78
ADT CN 1099295 A CN 94-105479 940524
PRAI CN 94-105479 940524
IC ICM A61K035-78
ICS A61K009-06
AB CN 1099295 A UPAB: 970530
Plaster comprises **frankincense**, myrrh, Radix aconiti brachypodi, Radix aconiti kusnezoffii, arisaema, Rhizoma pinelliae, bornel and natural bezoar of ox and musk.
USE - The plaster can restore normal menstruation and invigorate blood circulation, remove evil heat, soften hard lumps and stop pain. the effective rate reaches 96% without toxic side effects.
FS CPI
FA AB
MC CPI: B04-A10; B12-M02D; B14-C01; B14-F02; **B14-H01**; B14-N14

L98 ANSWER 18 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-203799 [19] WPIDS
DNC C97-065403
TI Medicine for curing hyperplasia of mammary glands.
DC B04
IN LU, X
PA (LUXX-I) LU X
CYC 1
PI CN 1096950 A 950104 (9719)* A61K035-78
ADT CN 1096950 A CN 93-107661 930629
PRAI CN 93-107661 930629
IC ICM A61K035-78

AB CN 1096950 A UPAB: 970512
An external application drug comprises musk, pearl, amber, **frankincense** and myrrh. It is pasty.
USE - The drug invigorates blood circulation, removes swelling, resolves lymph nodes and stops pain. It can directly enter a focus region from the skin surface via osmosis. The total curative rate for hyperplasia of the breast is 97.2%.
ADVANTAGE - The drug is convenient, economic, non-toxic and quick acting.
FS CPI
FA AB
MC CPI: B04-A10; B04-B04G; B04-B04M; B14-C01; B14-C03; **B14-H01**

L98 ANSWER 19 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-161430 [15] WPIDS
DNC C97-051708
TI Apotosis inhibitor as immunomodulatory agent for treating e.g. hepatitis - contains e.g. berberine, palmatine and/or capillarisin.
DC B02 B03 B04
PA (TSUR) TSUMURA & CO
CYC 1
PI JP 09030983 A 970204 (9715)* 13 pp A61K035-78
ADT JP 09030983 A JP 95-182999 950719
PRAI JP 95-182999 950719
IC ICM A61K035-78
ICS A61K031-01; A61K031-32; A61K031-435; A61K035-84
ICA C07D311-16; C07D455-03
AB JP09030983 A UPAB: 970410
Apotosis inhibitor comprises berberine, palmatine, capillarisin, 7-methyl-capillarisin, 6,7-dimethyl-esculetin, arcapillin, capillin, capillene and/or capirallin.
Also claimed are apotosis inhibitors contg. (i) crude drug selected from Coptis japonica Makino, Phellodendron amurense Rupr. SOBOKU, KOUTAIKYU, OHHI, BOKUSOKU, C.Zedoaria Roscoe, BARANSHI, KISOU, KANPAKU, Ephedra sinica Stapf, Pachyma Hoelen Rumpf., **Frankincense**, ZENGO, R.sachalinensis Nakai and/or Liquidam-baris-fructus, A.capillaris Thumb. and (ii) at least one Chinese herbal medicine selected from OHRENGEDOKUTO, SANOUSYASHINTO, KEISHIBUKURYOUGAN, KEISHIKASYAKUDAIOUTO, DAIJOKITO, INCHINKOUTO, ROKUMIGAN, MOKUBOUITO, MASHININGAN, IREITO, TOKIKENCHUTO, SENKYUCHACHOTO, KARYUKOTSUBOREITO, GOSYUTO, BOUHUUTSUUSYOUSAN, TOUKAKUJYOUKITO, CHIDABOKUIPPO, DAIOBOTANPITO, SAIBOKUTO, MOOUTO, MOOUBUSHISAISHINTO and INCHINGOREISAN.
Crude drug or Chinese herbal medicine is used directly or extracted with water, ethanol, acetone or ether, pref. with water. Extn. with water is carried out by adding hot water (8-20 fold) to crude drug or Chinese herbal medicine and by filtration. The apotosis inhibitor is formulated into oral agent, e.g. suspension, emulsion, syrup or elixirs or parenteral agent, e.g. injection or drip infusion.
USE - Apotosis inhibitor is an immunomodulator or hepatitis treating agent, and is for treatment of viral hepatitis, hepatic cirrhosis, lowered immunofunction caused by stress. It is also used to prevent death of normal cells which are likely to be damaged by anticancer agent.
In an example, the inhibitory activities against apotisis induced by TFG beta on highly differentiated hepatic carcinoma strain McA-RH8994 of rat were examined using crude aq. drug extracts and commercially available Chinese herbal medicine prepn. Every crude drug or Chinese herbal medicine inhibited the increase of DNA fragment ratio induced by TGF beta 1, whereas the control increased DNA fragment rate to 69.3% from 32.4% after the addn. of TGF beta 1.

Dwg.0/0
FS CPI
FA AB; DCN
MC CPI: B06-E05; B14-G02D; B14-N12

L98 ANSWER 20 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-155429 [15] WPIDS
DNC C97-049939
TI Medical or veterinary use of pure **boswellic** acid - to reduce leukocyte **elastase** or **plasmin** activity e.g. in pulmonary emphysema, cystic fibrosis, chronic bronchitis, rheumatoid arthritis and tumours.
DC B05 C03
IN AMMON, H P T; SAFAYHI, H
PA (AMMO-I) AMMON H P T
CYC 20
PI DE 19531067 A1 970227 (9715)* 12 pp A61K031-56
WO 9707796 A1 970306 (9716) DE 32 pp A61K031-19
RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: JP US
EP 854709 A1 980729 (9834) DE A61K031-19
R: AT BE CH DE DK ES FI FR GB IE LI LU NL PT SE
ADT DE 19531067 A1 DE 95-19531067 950823; WO 9707796 A1 WO 96-EP3705 960822; EP 854709 A1 EP 96-929309 960822, WO 96-EP3705 960822
FDT EP 854709 A1 Based on WO 9707796
PRAI DE 95-19531067 950823
IC ICM A61K031-19; A61K031-56
ICS A61K035-78
AB DE19531067 A UPAB: 970410
Use of pure **boswellic** acid (I) or its salts or derivs. or salts of its derivs. or an (I)-contg. plant prepn. for the prophylaxis and/or control of diseases caused by an elevated leukocyte **elastase** or **plasmin** activity or diseases treatable by inhibition of normal leukocyte **elastase** or **plasmin** activity in human or veterinary medicine is new.
USE - (I) is esp. useful for treating pulmonary emphysema, acute respiratory distress syndrome, pulmonary shock, cystic fibrosis, chronic bronchitis, glomerulonephritis, and rheumatoid arthritis (which are caused by increased leucocyte **elastase** activity), and tumours and tumour metastasis (which are caused by increased **plasmin** activity) (all claimed).
Dwg.0/2
FS CPI
FA AB; DCN
MC CPI: B09-B; **B14-C09B**; **B14-H01B**; **B14-K01**; B09-B; C09-B; **B14-C09B**; **C14-C09B**; **B14-H01B**; **C14-H01B**; **B14-K01**; **C14-K01**; C09-B; **C14-C09B**; **C14-H01B**; **C14-K01**

L98 ANSWER 21 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-119705 [12] WPIDS
DNC C97-038804
TI Mammary gland hyperplasia medical paste prepn..
DC B04
IN XU, W
PA (XUWW-I) XU W
CYC 1
PI CN 1080532 A 940112 (9712)* A61K035-78

ADT CN 1080532 A CN 92-104721 920620
PRAI CN 92-104721 920620
IC ICM A61K035-78
AB CN 1080532 A UPAB: 970320
The present invention relates to a method for preparing the mammary gland hyperplasia plaster. The dried rhizome of rehmannia, Chinese angelica, cape jasmine, root of Dahurian angelica, sea horse, scorpion and centipede are soaked in sesame oil, and heated for decocting, filtered to remove dregs, then the powdered borneol, dragon's blood, **frankincense**, myrrh and yellow lead are added and heating is stopped when they become black in colour. They are stirred uniformly into a plaster. The invention cures mainly the periodic mammary gland mass and lobular hyperplasia, mastadenoma, chronic mastitis, mammary swelling and mastalgia, the cure rate is 89% and total effective rate is 98%.
Dwg.0/0
FS CPI
FA AB
MC CPI: B04-A08C2; B04-A10; B04-B04M; B12-M02D; B14-C03; B14-F02; **B14-H01B**

L98 ANSWER 22 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-118735 [11] WPIDS
DNC C97-038272
TI Compsn. comprises terpene-contg. substance(s) with propolis - used to treat inflammatory disorders of e.g. skin, respiratory system, vascular system, muscles, connective tissue, eyes etc..
DC B04 B05 D21
IN BEVILACQUA, M; ZACCAGNA, C A
PA (BEVI-I) BEVILACQUA M; (LAUS-I) MICHELIN LAUSAROT E
CYC 68
PI WO 9702040 A1 970123 (9711)* EN 22 pp A61K035-78
RW: AT BE CH DE DK ES FI FR GB GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG
W: AL AM AU BB BG BR BY CA CN CZ EE GE HU IL IS JP KE KG KP KR KZ LK LR LS LT LV MD MG MK MN MW MX NO NZ PL RO RU SD SG SI SK TJ TR TT UA UG US UZ VN
AU 9663058 A 970205 (9721) A61K035-78
EP 836478 A1 980422 (9820) EN A61K035-78
R: AT DE ES FR GB IT NL SE
ADT WO 9702040 A1 WO 96-EP2824 960627; AU 9663058 A AU 96-63058 960627; EP 836478 A1 EP 96-922041 960627, WO 96-EP2824 960627
FDT AU 9663058 A Based on WO 9702040; EP 836478 A1 Based on WO 9702040
PRAI IT 96-PD38 960220; IT 95-PD133 950703; IT 95-PD134 950703
REP 3.Jnl.Ref ; AU 7715491; JP 1245058; RO 108643
IC ICM A61K035-78
ICI A61K035-78, A61K035:
AB WO 9702040 A UPAB: 970410
Pharmaceutical prod. comprises a combination of one or more terpene-contg. substances with propolis. Also claimed is a pharmaceutical prod. based on terpenes, which comprises a combination with myrrh with at least one other resin.
The prod. contains a combination of natural **olibanum** or derivs. with propolis. The prod. is a tablet, pill, capsule, soln., emulsion, ointment, cream, inhalation prepn., aerosol, suppository or pessary.
USE - Prod. is used for the treatment of predominantly inflammatory disorders of varying aetiology, both post-traumatic or not, as a main or sec. event, acute, chronic or in remission, with or without effusion, even

if resistant to common steroid therapy or to FANS (claimed; no further details)). The prod. is used in the treatment of inflammatory disorders of the skin, respiratory system, vascular system , muscles, connective tissue and skeleton e.g. rheumatoid arthritis, goneitis, epicondylitis and athrosis), eyes and ears, teeth and mouth, gastro-intestinal tract, liver and biliary tracts and genitourinary tracts . Applicn. lasts for 5-10 days (claimed). The prod. is spread on an absorbent medium and adhered to the region to be treated (claimed).

ADVANTAGE - Release rate of prod. is constant, avoiding discontinuous treatments. Prolonged duration of action is achieved, giving lower admin. frequency and a low total daily dose of drug, with high terpene absorption.

Dwg.0/0

FS CPI
FA AB
MC CPI: B04-A10; B14-C03; B14-N17; D08-B08; D08-B09A

L98 ANSWER 23 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-101804 [10] WPIDS
DNC C97-032617
TI New fraction contg. known **boswellic** acids and new 2-alpha,3-alpha-di hydroxy urs-12-en-24-oic acid - useful as synergistic anti-inflammatory, antiarthritic and antiulcerogenic agent.
DC B05
IN DHAR, K L; KAPIL, R S; SETHI, V K; TANEJA, S C
PA (COUL) CSIR COUNCIL SCI IND RES
CYC 11
PI EP 755940 A1 970129 (9710)* EN 15 pp C07J063-00
R: AT BE CH DE DK FR GB IT LI SE
US 5629351 A 970513 (9725)# 9 pp A61K031-015
ADT EP 755940 A1 EP 95-305242 950727; US 5629351 A US 95-421500 950413
PRAI EP 95-305242 950727; US 95-421500 950413
REP 6.Jnl.Ref
IC ICM A61K031-015; C07J063-00
ICS A61K031-56
AB EP 755940 A UPAB: 970307
Anti-inflammatory and antiulcerogenic fractions comprising a mixt. of 3 alpha -hydroxy urs-12-en-24-oic acid (beta -**boswellic** acid) (I), 3 alpha -acetoxy-urs-12-en-24-oic acid (II), 3 alpha -hydroxy urs-12-en-11-keto-24-oic acid (III), 3 alpha -acetoxy urs-12-en-11-keto-24-oic acid (IV), 3 alpha -hydroxy urs-9,12-dien-24-oic acid (V) and 2 alpha ,3 alpha -dihydroxy urs-12-en-24-oic acid of formula (VI) are new. (VI), an antiulcerogenic and anti-inflammatory antiarthritic agent, is claimed per se.

The fractions pref. comprise 35-55 wt.% (I), 25-45 wt.% (II), 4-14 wt.% (III), 3-13 wt.% (IV), 1-3 wt.% (V) and 1-3 wt.% (VI).

ADVANTAGE - The fractions avoid the ulceration problems associated with prior art drugs. (I)-(VI) together with unidentified compounds exhibit synergistic and combined antiulcerogenic and anti-inflammatory antiarthritic activities, this being partly due to the presence of the novel acid (VI).

Dwg.0/0

FS CPI
FA AB; GI; DCN
MC CPI: B09-B; B14-C03; **B14-C09**; B14-E08; B14-S09

L98 ANSWER 24 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-052981 [06] WPIDS
DNC C97-017697

TI Ointment for treating spur.
DC B04
IN HAI, N
PA (HAIN-I) HAI N
CYC 1
PI CN 1077130 A 931013 (9706)* A61K035-78
ADT CN 1077130 A CN 93-103931 930401
PRAI CN 93-103931 930401
IC ICM A61K035-78
ICS A61K009-06
AB CN 1077130 A UPAB: 970205
The present invention discloses an external ointment for curing osteoproliferation. It contains Dahurian angelica root, dried ginger, caulis piperis futokadsurae, Chinese angelica, **frankincense**, psedo-ginseng, Chinese ephedra, turmeric , chilli, lanoline, vaseline, stearic acid, ilex oil, camphor powder, menthol, Towne-80, triethanol amine, sugar and water.
Dwg.0/0
FS CPI
FA AB
MC CPI: B04-A10; B04-B01C2; B04-B01C3; B04-C03D; B04-D01; B10-B03B; B10-C04E; B10-E04A; B10-F02; B12-M02B; **B14-H01B**; B14-N01

L98 ANSWER 25 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 96-321565 [32] WPIDS
DNC C96-102326
TI Use of **boswellic** acid or derivs. for treating brain tumours - inhibits peritumoural brain oedema and tumour cell growth, has low toxicity and few side effects.
DC B05
IN AMMON, H P T; SIMMET, T
PA (SIMM-I) SIMMET T
CYC 19
PI WO 9619212 A1 960627 (9632)* DE 20 pp A61K031-19
RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
W: JP US
DE 4445728 A1 960627 (9632)
EP 871437 A1 981021 (9846) DE A61K031-19
R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
JP 10511647 W 981110 (9904) 16 pp A61K031-19
ADT WO 9619212 A1 WO 95-EP5073 951221; DE 4445728 A1 DE 94-4445728 941221; EP 871437 A1 EP 95-942720 951221, WO 95-EP5073 951221; JP 10511647 W WO 95-EP5073 951221, JP 96-519521 951221
FDT EP 871437 A1 Based on WO 9619212; JP 10511647 W Based on WO 9619212
PRAI DE 94-4445728 941221
REP WO 9001937
IC ICM A61K031-19
ICS A61K009-20; A61K031-215; A61K031-56; A61K031-57; A61K035-78; C07J001-00
AB WO 9619212 A UPAB: 960819
Prepn. for the treatment brain tumours comprises pure **boswellic** acid, its physiologically acceptable salts, derivs., salts of derivs. or a plant prepn. contg. **boswellic** acid.
The plant prepn. is an incense extract. The pharmaceuticals can be in the form of tablets, dragees, capsules, solns., polymer-bound prepns. or suppositories and can be applied orally, buccally, rectally, intramuscularly, subcutaneously, intraarticularly, intravenously, intracranially or intrathecally. The **boswellic** acid can be applied with other chemically pure pharmaceuticals and/or plant

pharmaceuticals, esp. with cytostatics and/or glucocortico steroids.
USE - The **boswellic** acid inhibits peritumoural brain oedema and tumour cell growth and leads to the death of tumour cells (claimed).
ADVANTAGE - **Boswellic** acid is of low toxicity and hence doses are not critical. The side effects are few and the substances are well tolerated by patients.
Dwg.0/0
FS CPI
FA AB; DCN
MC CPI: B09-B; **B14-H01**

L98 ANSWER 26 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 96-138985 [14] WPIDS
DNC C96-043605
TI Herbal compsn. for treating degenerative musculoskeletal disease - comprises mixt. of extracts from four Indian medicinal plants, used esp. for rheumatoid- or osteo-arthritis.
DC B04
IN PATWARDHAN, B
PA (PATW-I) PATWARDHAN B
CYC 1
PI US 5494668 A 960227 (9614)* 14 pp A61K035-78
ADT US 5494668 A US 94-273189 940711
PRAI US 94-273189 940711
IC ICM A61K035-78
AB US 5494668 A UPAB: 960405
Degenerative musculoskeletal disease is treated by admin. of a compsn. contg. extracts of 30-50 wt.% Ashwagandha (Withania sonnifera), 30-50 wt.% Sallai guggul (**Boswellia** serrata) gum exudate, a trace to 15 wt.% turmeric (Curcuma longa) rhizome and 5-15 wt.% ginger (Zingiber officinale) rhizome.
Each plant extract is prepd. by (1) comminuting cleaned material to particle size 0.001-10 mm3, (2) steam distilling, with recovery of any volatile fraction, (3) sequential extn. of the distilled residue with first and second polar solvents and with a non-polar solvent (the second and third extn. are for 12-36 hrs.) to recover a fraction from each extn. step, and (4) recombining these 3 fractions and any volatile fraction from step (2).
USE - The compsn. has immunomodulatory activity esp. for treatment of rheumatoid arthritis and osteoarthritis but also immunodeficiency diseases.
Dosage is 4-10 (pref. 6) mg/kg/day, given enterally.
ADVANTAGE - All 4 plants are known in Indian traditional medicine but when combined they show a synergistic immunostimulatory action. The compsn. has no toxic or other adverse side effects and is suitable for long term admin.
Dwg.0/3
FS CPI
FA AB; GI; DCN
MC CPI: B04-A08C2; B04-A10; B04-A10F; **B14-C09A**; **B14-C09B**; B14-G01

L98 ANSWER 27 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 96-097835 [10] WPIDS
DNC C96-031667
TI Synergistic compsns. for treatment of rheumatoid- or osteo-arthritis - comprise Withania Somnifera, Curcuma longa, Jasad Bhasma, and other plant extracts.
DC B04

IN KASHINATH, J Y
PA (KASH-I) KASHINATH J Y
CYC 1
PI ZA 9500908 A 951227 (9610)* 12 pp C07D000-00
ADT ZA 9500908 A ZA 95-908 950206
PRAI ZA 95-908 950206
IC ICM C07D000-00
AB ZA 9500908 A UPAB: 960308
A synergistic compsn. (I) for the treatment of rheumatoid arthritis comprises a tablet or capsule contg. an intimate mixt. of Withania somnifera (prEf. 75 mg); Curcuma longa (pref. 42 mg); Inula racemosa (pref. 25 mg); Paedaria Foeteda (pref. 39 mg); **Boswellia** Serrataa (pref. 46 mg); and Jasad Bhasma (organic zinc extract) (pref. 40 mg).

Also claimed is a synergistic compsn. (II) for the treatment of osteoarthritis comprising, pref. in tablet or capsule form, Withania somnifera (pref. 75 mg); Sida cardifolia (pref. 50 mg); Curcuma longa (pref. 42 mg); Allium sativum (pref. 30 mg); Prunus Cerasodius (pref. 3 mg); Jasad Bhasma (pref. 40 mg) and Kukut Bhasma (pref. 40 mg).

USE - The compsns. are used for treatment of rheumatic diseases, immunodeficiency diseases and various degenerative musculo-skeletal diseases such as rheumatoid arthritis and ostero-arthritis, using the principles of Ayurveda. Maximum safe dose of (I) is 30.37 g/kg in mice, corresp. to 235.4 g for a 70 kg man. LD50 (mice) is above 30.37 g/kg. Maximum safe dose of (II) is 15.15 g/kg in mice, corresp. to 117.53 g for a 70 kg man. LD50 (mice) is above 151.5 g/kg.

ADVANTAGE - The compsns. show no toxicity or side-effects. (Reissue of the entry advised in week 9605 based on complete specification). Dwg.0/0
FS CPI
FA AB
MC CPI: B04-A08; B04-A10; B12-M11; **B14-C09**; B14-S09

L98 ANSWER 28 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 94-293987 [36] WPIDS
DNC C94-133984
TI Novel therapeutic herbal compsn. to enhance the immune system - to treat AIDS, cancer, depression, Epstein Barr syndrome and as a blood tonic, herbs act synergistically to improve the ratio of CD4/CD8 cells.
DC B04
IN NEIRON, J M
PA (NEIR-I) NEIRON J M; (PHAR-N) PHARMAKON USA INC
CYC 43
PI WO 9418993 A1 940901 (9436)* 25 pp A61K035-78
RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL OA PT SE
W: AU BB BG BR BY CA CZ FI HU JP KP KR KZ LK MG MN MW NO NZ PL RO RU SD SK UA VN
AU 9462523 A 940914 (9502) A61K035-78
ADT WO 9418993 A1 WO 94-US2183 940223; AU 9462523 A AU 94-62523 940223
FDT AU 9462523 A Based on WO 9418993
PRAI US 93-20561 930223
REP US 5200186
IC ICM A61K035-78
ICS A61K009-48
AB WO 9418993 A UPAB: 941102
A therapeutic herbal compsn. (A) is new. It comprises **Boswelia** carterii stem resin (Bos), Styrax benzoic stem resin (Sty), the bark of Cinnamomum zeylanicum (Cin), Betula alba (Bet) and Impatiens balsamina (Imp), the roots of Curcuma zedoaria (Cur), Nardostachys chinensis (Nar),

Costus spicatus (Cos) and Cyperus rotundus (Cyp), Syzygium aromaticum fruit (Syz) and Allilum sativum bulk (All) in amts. effective to produce a physiological effect.

(A) comprises (Bos) in an amt. from 1.5-75 wt.% (pref. 15.5 wt.%), (Sty) in an amt. 1.5-75 wt.% (pref. 15.5 wt.% (Cin) is present from 0.7-35 wt.% (pref. 6.9 wt.%), (Cur), (Nar) and (Syz) are all present in an amt. 0.6-30 wt.% (pref. 6.0 wt.%), (Bet) in an amt. 1.5-75 wt.% (pref. 5.5 wt.%), (Imp) is present in an amt. 1.5-35 wt.% (pref. 5.5 wt.%) and (Cos), (Cyp) and (All) are present in an amt. 0.4-25 wt.% (pref. 4.3 wt.%).

USE/ADVANTAGE - (A) augments the immune system through the synergistic interaction of the herbal components. It is useful for immune enhancement, prophylaxis and treatment of cancer, AIDS, Epstein Barr syndrome depression and as a blood tonic. A 580 mg. dose of (A) would be admin. several times daily, orally. The combination of herbs produces a synergistic effect on improving the immune system. In AIDS (A) has been shown to reduce gland swelling, restore a feeling of well-being and associated wt. gain, an improvement in skin hypersensitivity tests and an increase in the concn. of circulating helper T-cells (dose was 4 capsules twice daily, 1 hr. before meals). (A) is a low toxicity prod. showing a shelf-life of 2 years with good stability.

Dwg.0/2

FS CPI
FA AB
MC CPI: B04-A10; B14-G01B; **B14-H01B**; B14-J01A1; B14-S09

L98 ANSWER 29 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 93-236374 [30] WPIDS
DNC C93-105294
TI **Boswellia** acid or its derivs. or plant extracts - for prophylaxis and therapy of inflammations caused by increased leukotriene formation, e.g. rheumatism, psoriasis.
DC B05
IN AMMON, H P T; SAFAYHI, H; SINGH, G B
PA (AMMO-I) AMMON H P T
CYC 15
PI EP 552657 A1 930728 (9330)* DE 10 pp A61K031-215
R: AT BE CH DE DK ES FR GB GR IE IT LI NL PT SE
DE 4201903 A1 930729 (9331) 16 pp A61K031-56
ADT EP 552657 A1 EP 93-100398 930113; DE 4201903 A1 DE 92-4201903 920124
PRAI DE 92-4201903 920124
REP 5.Jnl.Ref ; WO 9100937
IC ICM A61K031-215; A61K031-56
ICS A61K035-78
AB EP 552657 A UPAB: 931118
Pure **Boswellia** acid, one of its physiologically acceptable salts, derivs. or salt of derivs. or a plant prepn. contg. **boswellia** acid can be used for the prophylaxis and/or therapy of inflammations caused by increased leukotriene formation in human and veterinary medicine.

USE/ADVANTAGE - The **boswellia** acid cpds. are esp. effective against diseases of the joints (rheumatism), epidermal lesions (psoriasis), allergic and chronic asthma, endotoxin shock, inflammations of the intestines (colitis ulcerosa, Morbus Crohn) and chronic hepatitis. The **boswellia** acid cpds. selectively influence inflammations by inhibiting leukotriene synthesis. They can be used to replace steroidal antirheumatic drugs and can be used for prlonged periods without causing side effects, esp. the effects on the metabolic and hormone systems caused by steroidal antirheumatics. The **boswellia** acid prepns. can be taken intraperitoneally, orally, buccally, rectally, intramuscularly,

topically, subcutaneously, intraarticularly or intravenously. IC50 values for 5-lipoxygenase are 5uM for beta-**boswellia** zcid, 11-keto-beta-**boswellia** acid and alpha-**boswellia** acid, 7 micro-M for acetyl-**boswellia** acid and acetyl-alpha-**boswellia** acid and 2 micro-M for acetyl-11-keto-beta-**boswellia** acid.
Dwg.0/4

FS CPI
FA AB; DCN
MC CPI: B09-B; B12-A01; B12-A07; B12-D02; B12-D09; B12-G01; B12-G02; **B12-K01; B12-K02**

L98 ANSWER 30 OF 30 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 90-099251 [13] WPIDS
DNC C90-043590
TI Topoisomerase inhibition and cancer therapy - using **boswellic** acid cpds..
DC B03 B05
IN COOK, C E; FANG, O; LEE, Y; LI, D; WANG, Z; FANG, Q; COOK, C; FANG, Q C; LEE, Y W; WANG, Z G
PA (RETR-N) RES TRIANGLE INST; (RETR-N) RES TRIANGLE SOC
CYC 20
PI WO 9001937 A 900308 (9013)* EN 54 pp
RW: AT BE CH DE FR GB IT LU NL SE
W: AU DK JP KR NO
AU 8943033 A 900323 (9033)
CN 1043131 A 900620 (9112)
EP 431076 A 910612 (9124)
R: AT BE CH DE FR GB IT LI LU NL SE
NO 9100696 A 910221 (9125)
DK 9100313 A 910222 (9128)
US 5064823 A 911112 (9148) 17 pp
JP 04500209 W 920116 (9209)
EP 431076 B1 931013 (9341) EN 35 pp A61K031-705
R: AT BE CH DE FR GB IT LI LU NL SE
DE 68909947 E 931118 (9347) A61K031-705
TW 225990 A 940701 (9430) A61K031-70
CA 1330944 C 940726 (9432) A61K031-56
EP 431076 A4 920115 (9520)
JP 2828295 B2 981125 (9901) 17 pp A61K031-16
ADT WO 9001937 A WO 89-US3581 890824; EP 431076 A EP 89-910793 890824; US 5064823 A US 90-517176 900501; JP 04500209 W JP 89-510077 890824; EP 431076 B1 EP 89-910793 890824, WO 89-US3581 890824; DE 68909947 E DE 89-609947 890824, EP 89-910793 890824, WO 89-US3581 890824; TW 225990 A TW 90-104733 900609; CA 1330944 C CA 89-608654 890817; EP 431076 A4 EP 89-910793 ; JP 2828295 B2 JP 89-510077 890824, WO 89-US3581 890824
FDT EP 431076 B1 Based on WO 9001937; DE 68909947 E Based on EP 431076, Based on WO 9001937; JP 2828295 B2 Previous Publ. JP 04500209, Based on WO 9001937
PRAI US 88-235903 880824
REP US 4501734; 3.Jnl.Ref
IC A01N063-00; A61K031-70; C07J063-00
ICM A61K031-16; A61K031-56; A61K031-70; A61K031-705
ICS A01N063-00; A61K031-165; A61K031-18; A61K031-19; A61K031-195; A61K031-21; A61K031-215; A61K031-235; C07J063-00
AB WO 9001937 A UPAB: 930928
Methods for inhibiting topoisomerase I and II, inducing cell differentiation in cancer cells, and treating small-cell lung cancer, testicular cancer, lymphoma, leukaemia and cancer of the oesophagus,

stomach, colon, breast, CNS, liver and prostate, are claimed, all involving the use of pentacyclic triterpenoid cpds. of formula (I) or their salts.

R1 = COOR4, CONH2, CONHR5 or CON(R5)2; R4 = H, 1-4C alkyl, 2-4C alkenyl, 3-4C alkynyl, 6-8C aryl (opt. substd. by halogen, OMe, OEt, sulphonamide, NH2, mono- or di(1-4C alkyl)amino, mono- or diacetylamino, 1-4C alkyl and/or 2-4C alkenyl) or a mono-, di- or trisaccharide residue; R5 = Me, CH2COOH, CH2CH2COOH, 2-8C alkyl, 2-8C alkenyl, 2-8C alkynyl, 6-8C aryl (opt. substd. as above) or a mono-, di- or trisaccharide residue; one of R2 and R3 is H or R5 and the other is H, OR4, NH2, NHR5, N(R5)2, OCOR5 or NHCOR5, or R2+R3 = O or NOR4; R6 and R7 are as defined for R2 and R3; one of X1 and X2 is H and the other is Me.

Specified cpds. (I) have higher activity than camptothecin against topoisomerase I and higher activity than VP-16-213 against topoisomerase II. They induce differentiation in HL-60 cells at a concn. of 10 mcg/ml, and are active against L1210 leukaemia in mice.

0/6

FS CPI

FA AB; DCN

MC CPI: B09-B; B12-G01B5; B12-G05; **B12-G07**